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THE OIL WEEKLY

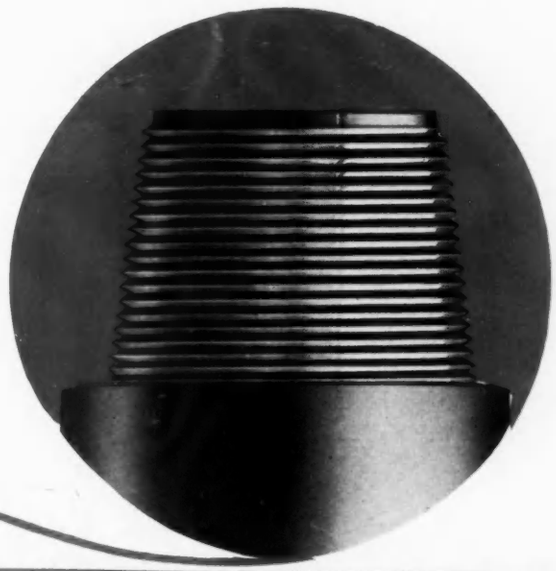
OIL & GAS ENGINEERING

News Statistics

AMONG WELL INFORMED OIL MEN

HUGHES
TOOL JOINTS

—are accepted as the most serviceable, dependable, and economical Tool Joints made. Long Years of trouble-free service have earned them this enviable good will.



SOLD BY SUPPLY STORES EVERYWHERE..

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.
Midland, Texas

Main Office and Plant
HOUSTON,
TEXAS

Export Offices
Woolworth Building
New York City

May 8, 1931

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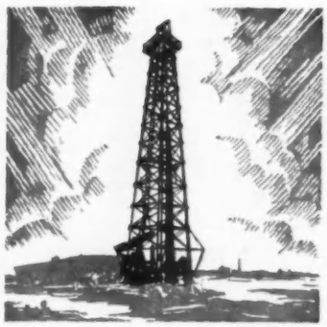
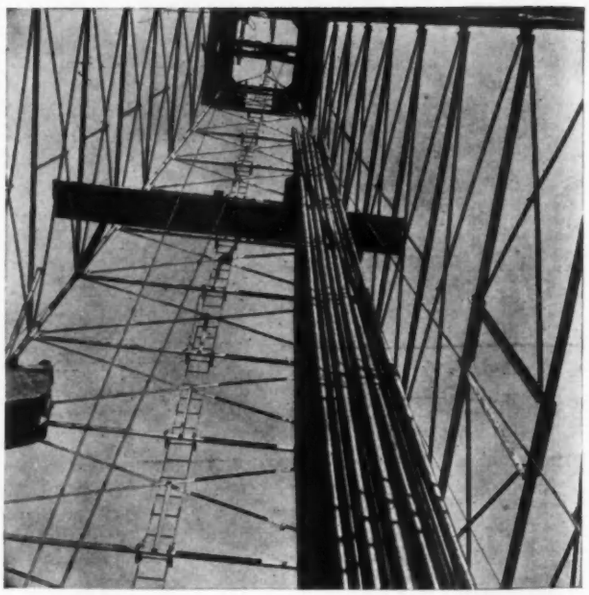


THE RIGID TEST *of* FIELD SERVICE *proves* YOUNGSTOWN PIPE ENDURANCE



Looking up the Derrick of the British American Oil Company's Smith No. 1 well at Pampa, Texas. Such strings of Youngstown tubing are a familiar sight in the oil country.

THE REAL proving ground for tubular goods is out in the fields where wells are drilled. That is where you will get the real verdict of pipe performance. There you will find Youngstown drill pipe, tubing, casing and line pipe passing test after test in actual service—demonstrating its strength, uniformity and ease of handling in thousands of wells—and in thousands of miles of pipe lines.

Every length of Youngstown oil country tubular goods is manufactured to meet every known condition of field service. Its performance in the field is a foregone conclusion. No tubular goods can show a better record of performance than Youngstown; no pipe affords better protection to drilling investments.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid."

General Offices: YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES:

CONTINENTAL SUPPLY COMPANY
1501 Locust Street, St. Louis, Mo.

INTERNATIONAL SUPPLY COMPANY
Tulsa, Okla.

REPUBLIC SUPPLY CO.
2122 East 7th Street
Los Angeles, Cal.

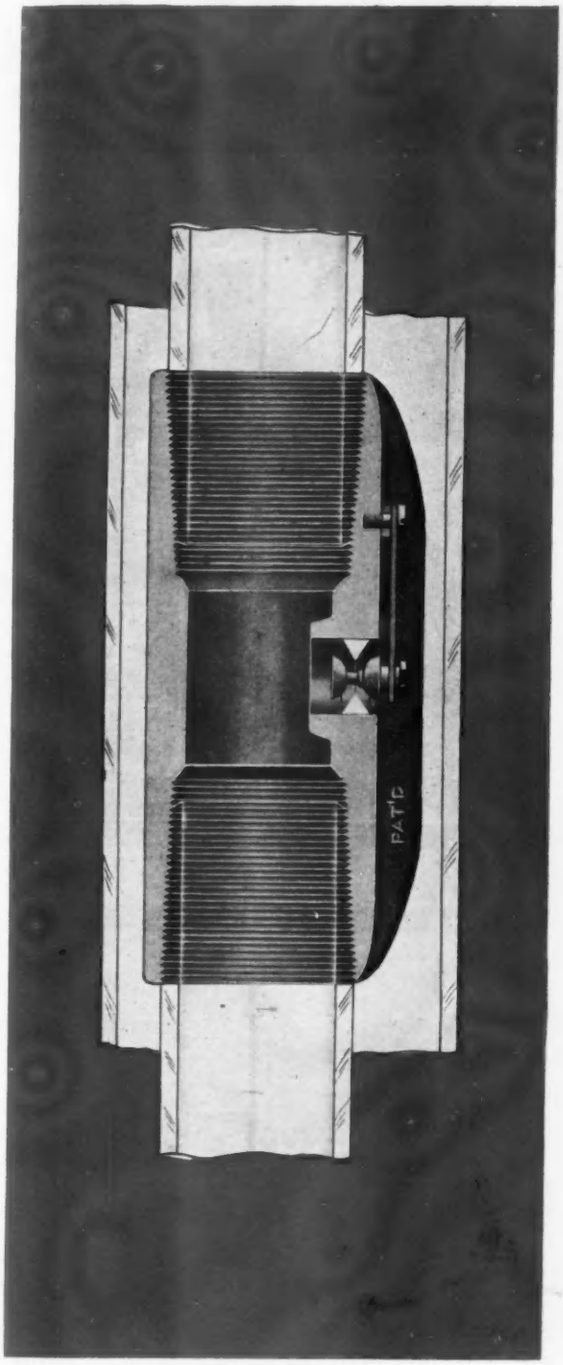
YOUNGSTOWN STEEL PRODUCTS COMPANY
3000 Santa Fe Avenue, Los Angeles, Cal.

YOUNGSTOWN

GALVANIZED SHEETS PROTECT · SAVE WITH STEEL

Positive Starting

at any depth



The P & T Kick-Off Unit is a positive starting unit where oil must be flowed by air or gas pressure. It is a tubing coupling, so designed as to eliminate the high starting or kick-off pressure of wells operated by air or gas lift. It also acts as a safety device against the hazards of high-pressure starting.

In wells where the P & T Kick-Off Unit is installed the flow always starts UNDER its normal working pressure and does not exceed this working pressure.

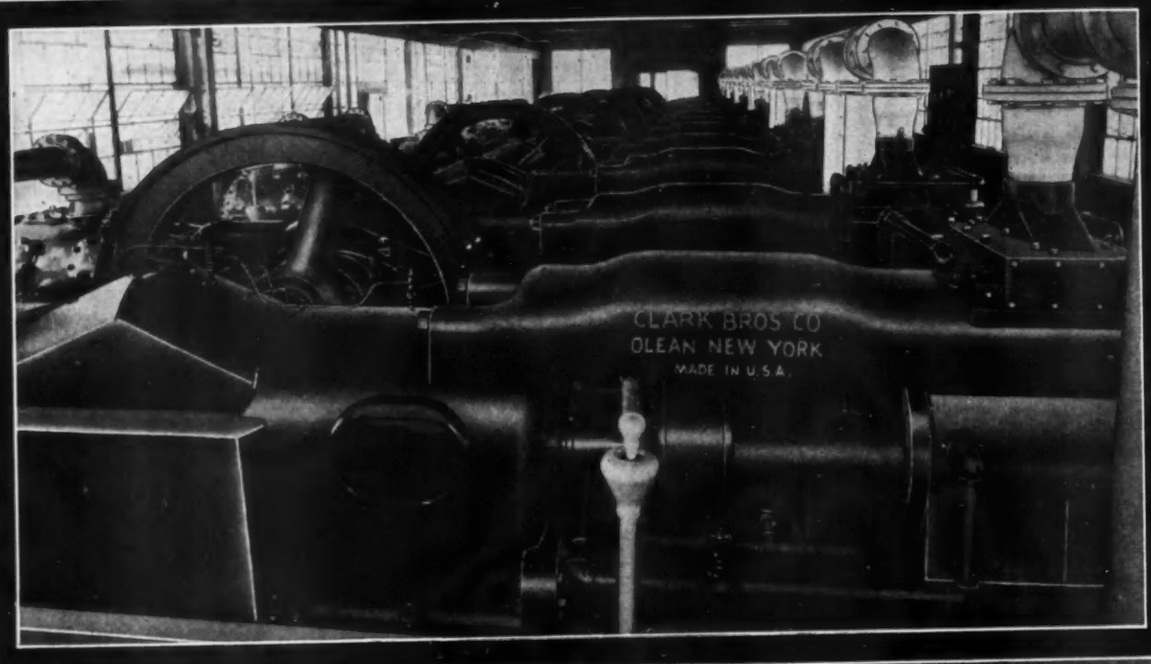
The P & T Kick-Off Unit is mechanically correct in both construction and design, the valves, seats, screws and springs are made of Monel metal.

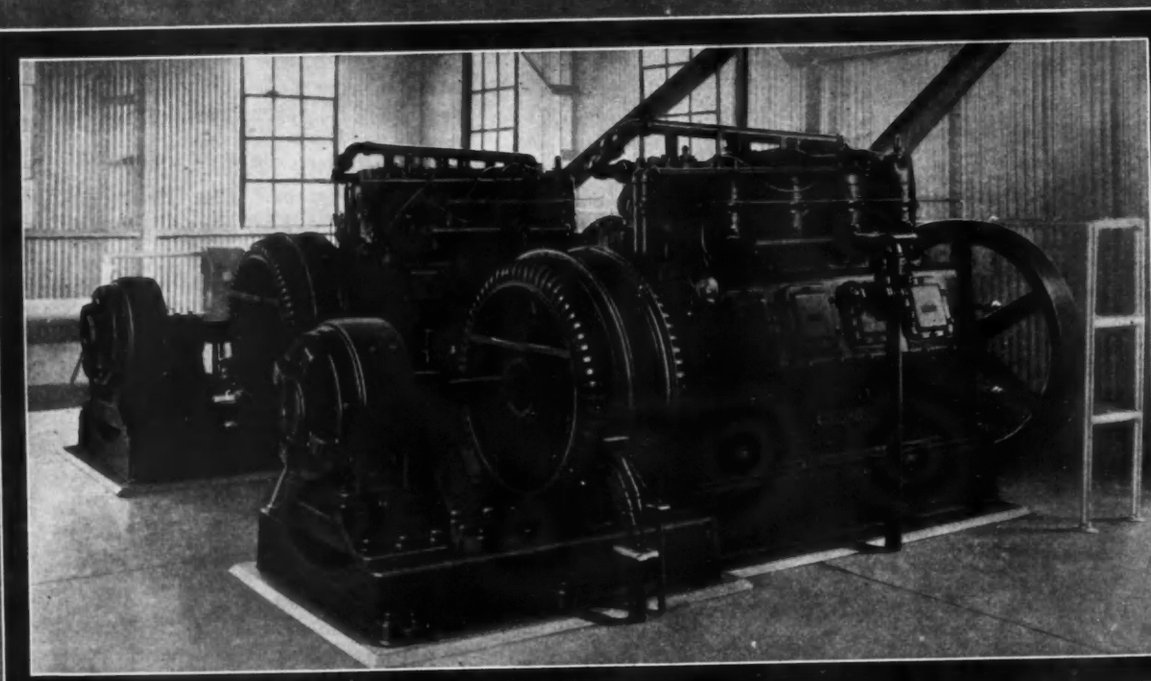
Call or write for complete information and prices. The Price & Trawick installation plan includes engineering service and a satisfactory trial period.

Price & Trawick Inc.

STROUD **OKLAHOMA**

CLARKS *for*





Gas Booster Stations..

CLARK 400 H. P. "Super Two-Cycle" Gas Engine driven Compressors are ideal for booster stations when 400 H. P. units are desirable. These engines give the advantage of 2-cycle simplicity combined with efficiency at least equal to that of the very best 4-cycle machines. Shown above at the left.

For auxiliary power at their Wichita, Kansas, station, the Consolidated Gas Utilities Corp. uses the two CLARK Generator units shown at the left. CLARK Direct Gas Engine Driven Generator Units, with direct connected Exciter, are built in 4, 6, and 8 cylinder types.

CLARK BROS. COMPANY
OLEAN, N. Y.

Export Office: 150 Broadway, New York, N. Y.
Mid-Continent Sales Offices: Tulsa, Okla., and Houston, Texas
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Warehouses: Tulsa; McCamey and Sweetwater, Texas; Artesia, New Mexico
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WE ARE THE INDUSTRY'S

Frick-Reid Stores from the Rocky Mountains to the Atlantic Coast, with their unlimited resources and interlocking facilities, constitute the Pipe Line Warehouse of the Gas and Oil Industries ● And the on-hand stocks of Quality Products are backed by immediately available shipments from the foremost mills and factories in America ● An organization old in experience, young in spirit, traditional in reliability, ... sovereign of progress and achievement, in supplies and equipment.

PITTSBURGH, PA.

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SUPPLY COR

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PIPE LINE WAREHOUSE!

▼**AXELSON MANUFACTURING COMPANY, LTD.**

Sucker Rods; Pull Rods; Plunger Working Barrels (Pumps); Stuffing Boxes, etc.

▼**BEAUMONT IRON WORKS COMPANY**

Dreadnaught Water Cooled Drawworks; Timken Bearing Equipped Crown, Traveling and Tubing Blocks; Pumping Hoists; Bailing Line Reels; Steel Walking Beams; Casing Shoes; Anchor and River Clamps; Patented Wrist Pin and Pitman; Flow Line and Christmas Tree Fittings.

▼**DONOVAN BOILER WORKS**

Oil Country Boilers and Tanks. Boilers range from low pressure to 350 pounds W.P., for the deepest and hardest drilling demands.

▼**JONES & LAUGHLIN STEEL CORPORATION**

Tubular goods including Buttwelded, Lapwelded and DOUBLE PIERCED Seamless steel in Line Pipe, Tubing, Drill Pipe and Casing. Long, solid lengths in Seamless Line Pipe. Double "Flashweld" Lengths in Lapwelded Line Pipe.

▼**NATIONAL TRANSIT PUMP & MACHINE COMPANY**

Pumps, Gas Engine Compressors, Pipe Line Equipment, etc.

J&L PIPE

▼**J. P. RATIGAN**

The "SURE-GRIP" line of pumping equipment including Grips, Clamps, Beam Hangers, etc.

▼**JOSEPH REID GAS ENGINE COMPANY**

Gas Engines, two and four-cycle; Band Wheel and Direct Drive Pumping Powers, Receiving Boxes and other refinery equipment.

▼**JOHN A. ROEBLING'S SONS COMPANY**

Wire Rope; Blue Center Rotary Drilling Lines; Quality Gas and Electric Welding Wire.

▼**ROSSENDALE-RUBOIL COMPANY**

"Camel Hair" and Stitched Canvas Belting.

▼**WALWORTH COMPANY**

Fittings, valves and tools for Oil, Gas, Air, Water and Steam; Sigma Steel Drilling Gate Valves, Flow Line and Refinery Valves.

▼**WHITLOCK CORDAGE COMPANY**

Manila Cordage, Drilling Cables, Bull Ropes, Cat Lines, etc. Either Waterflex or Plain. Waterflex cordage is impervious to moisture.

TULSA, OKLA.

-REID

PORATION

BUTORS • • •

HALLIBURTON

"We'll Get There Somehow"—how the Halliburton crews have fought to maintain that famous slogan! The storms they have bucked, the roads they have conquered, the conditions they have overcome are all part of oil industry history.

The illustration shows a Halliburton cementing outfit being loaded on a barge on its way to a well in the Gulf of Mexico.

To receive your copy of "The Cementer" regularly as issued, sign and return the form below.

Place me on the list to receive THE CEMENTER as issued

NAME_____ COMPANY_____ ADDRESS_____

Sturdier Smoother DRIVE

The Standardized Bearing of the Oil Industry

NO WEIGHT TOO GREAT
AMERICAN
HEAVY DUTY TYPE "C"

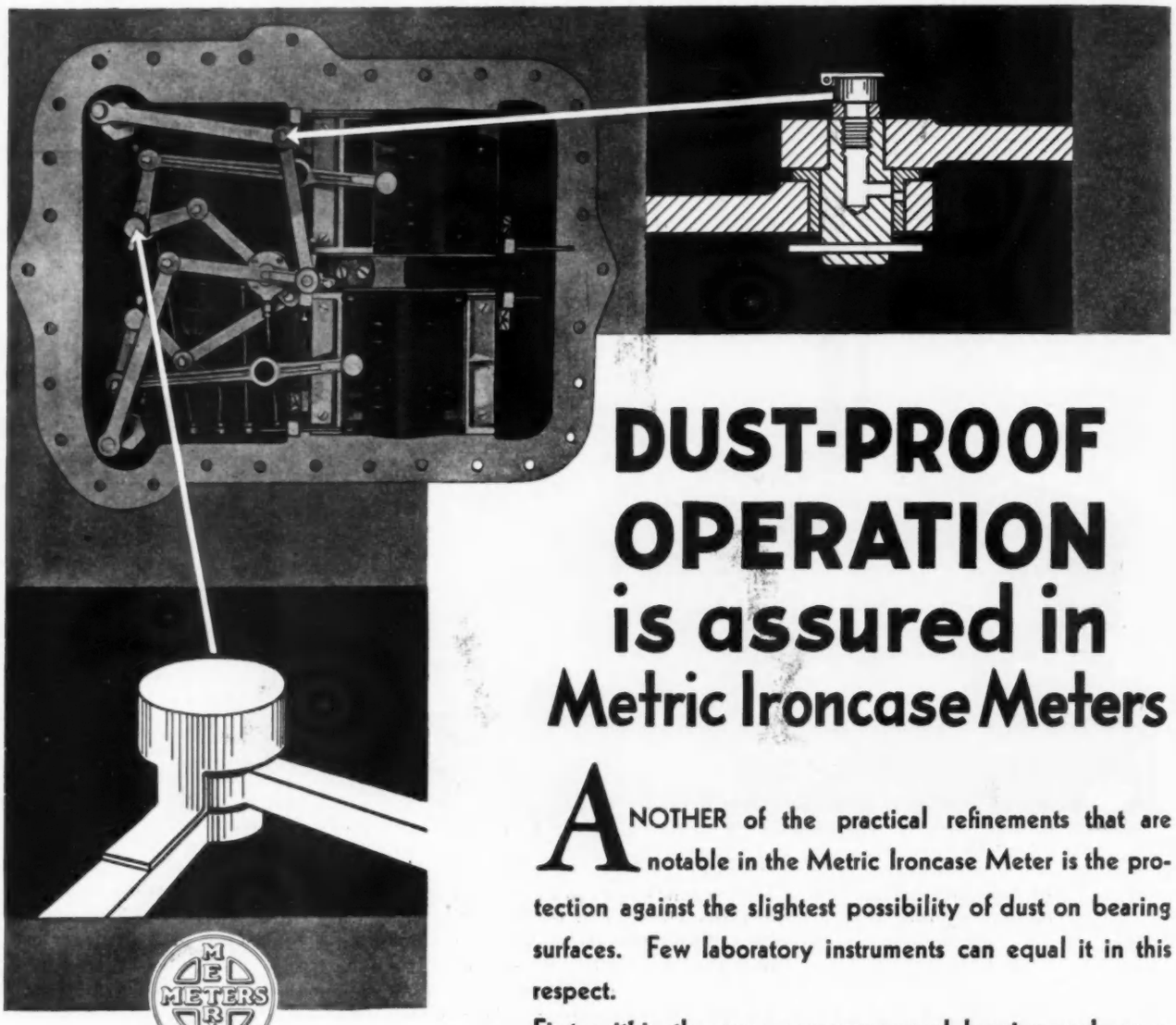
The remarkable progress made in heavy duty construction has been notably affected by the use of heavier duty roller bearings. The answer manufacturers are giving to the problems connected with deeper drilling, greater loads, higher safety factors, smoother operating qualities, sturdier types of construction have been characterized quite generally by the employment of American Bearings as a basic means of improvement.

Oil Well Supply Company furnishes the most recent illustration of this tendency by *standardizing* on American Bearings for their well known and popular 20-inch Imperial Rotary.

Cheaper bearings might do, but American Heavy Duty Bearings are certain to do, all the jobs this outfit encounters without in any way taxing the bearings. This Imperial drive is particularly assured long life by the ample strength represented in its *standardized heavy duty roller bearings of the oil industry*.

AMERICAN ROLLER BEARING CO.
PITTSBURGH, PENNA.

AMERICAN HEAVY DUTY ROLLER BEARINGS



DUST-PROOF OPERATION is assured in Metric Ironcase Meters

ANOTHER of the practical refinements that are notable in the Metric Ironcase Meter is the protection against the slightest possibility of dust on bearing surfaces. Few laboratory instruments can equal it in this respect.

First, within the case, every exposed bearing and every oil cup has its dust cap in place. Any minute foreign particles that may be present will be effectually prevented from reaching the working parts within.

Second, under these dust caps, every bearing is so designed that if the smallest grain of matter should in the course of time settle on its surface, it will be free to drop through.

Dust protection is only one of a coordinated set of Ironcase Meter refinements—all of which serve the practical purpose of low maintenance cost and unfailing accuracy in large capacity meter performance.

METRIC METAL WORKS
ERIE, PENNSYLVANIA
IRONCASE, TINNED STEEL CASE AND ORIFICE METERS

AMERICAN METER COMPANY
INCORPORATED
The World's Largest Manufacturers of Gas Meters and Allied Apparatus
ESTABLISHED 1836

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"B. S. & B." . . . A Word That Means Much in the Oil Fields!

The Mighty Whirlpool Rapids

Below Niagara Falls is a great whirlpool and one of the famed maelstroms in the world—a mighty vortex of water spinning around with a great force.

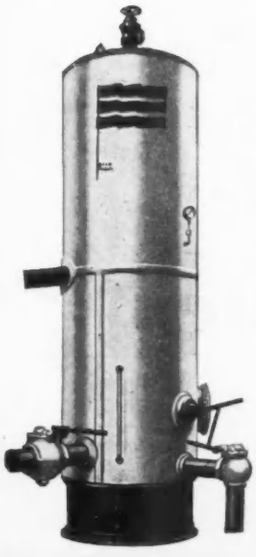
When the crude from an oil well enters a separator, with its tremendous volume of gas, it creates a mighty maelstrom or vortex as it strikes the inside of the shell and the centrifugal force is comparable with the force of the famed whirlpool of Niagara.

The separator must therefore be built to withstand these terrific forces of pressure and velocity, but the Improved AMERICAN is able to cope with these powerful elements, and has proved its worth under the most severe field conditions. Today the AMERICAN is the last word in oil and gas separator design and construction.

AMERICAN SEPARATORS

Improved OIL and GAS with the B.S.&B. Spray Condenser

A B. S. & B. Product



The weakest point in an ordinary separator is the welded seam but that weak point has been overcome in the Improved AMERICAN; for every seam is BS&B FLEXWELDED.

BS&B FLEXWELDING has been developed in our plant through the use of automatic equipment and a shielded arc process which produces welds equal to the plate itself in tensile strength, shock resistance, ductility and ability to withstand repeated stresses.

The steel plate used in the Improved AMERICAN is FLANGE QUALITY of a minimum tensile strength of 55,000 lbs. Every Improved AMERICAN is hydrostatically tested at the factory to twice its rated working pressure.

Thus the whirlpool created in an oil and gas separator is safely tamed by the Improved AMERICAN.

For safety, as well as economy, insist upon BS&B FLEXWELDED vessels

May we tell you about the various specifications of the Improved AMERICAN and the numerous exclusive features? We have a big story to tell you. May we, through a representative, letter or literature? Address Dept. AA-21.

Black Sivalls & Bryson INC.

BARTLESVILLE - OKLAHOMA

American Tank & Equipment Corp.

MANUFACTURING SUBSIDIARY — OKLAHOMA CITY, OKLA.

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Build Your Business on Our Reputation for Satisfactory Petroleum Products . . . a Reputation as old as the Automobile Industry Itself.

CITIES SERVICE OILS

ONCE - ALWAYS

The Empire Companies

General Offices
Bartlesville, Oklahoma

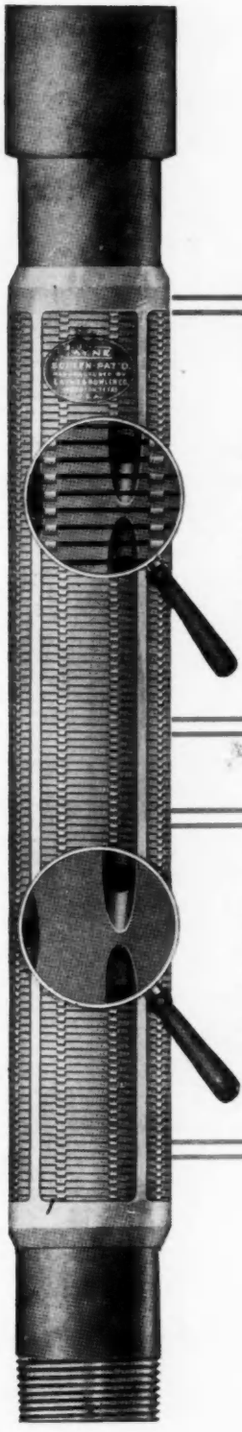
Refinery Sales Office
Tulsa, Oklahoma

THE LAYNE

Milled Groove SCREEN

is the result of twenty-five years study and experience with screen problems.

It has overcome clogging and sand cutting; increases production 33-1/3% to 100% and has the strength to stand 8,000 feet of casing.



Keystone Wire Wrapped

Bronze or steel wire in the shape of a Keystone is wrapped spirally around the pipe with a wide, flat surface to the outside. From 6 to 8 such wires pass over each milled groove, thus giving a narrow opening at the surface and a wide opening at the milled groove. These wires are sweated to the pipe and held in place by lugs.

Milled Groove

Not only does this milled groove increase the inflow area, but also directs the flow to the perforation in the pipe. This milled groove makes possible an increase in production of 33-1/3% to 100%. It is especially beneficial in getting greater production from low pressure wells.

The Layne & Bowler Co.

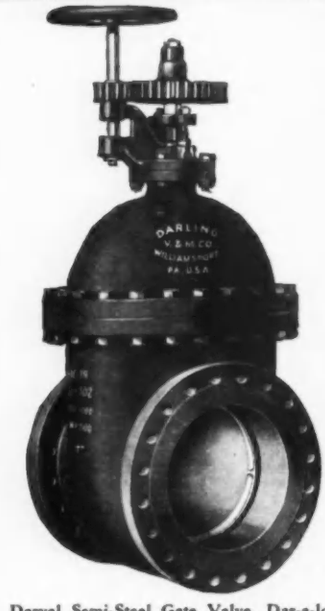
HOUSTON, TEXAS

The Layne New York Co., 30 Church St., New York

The Layne & Bowler Corp., Los Angeles, Calif.

Vickers Limited, London, England

Darval Semi-Steel Gate Valve, Dar-a-loy trimmed—for oil pipe lines and pumping stations.



Darval Semi-Steel Gate Valve, Dar-a-loy trimmed—for natural gas pipe lines and compressor stations.

Darling Valves are truly economical on cross-country lines

You may pay a little more for Darlings than ordinary valves, but actually you are getting a bargain—the most for your money.

Although you find them no bigger, or prettier, or heavier than others at the same price, you will learn after getting years of trouble-free service that Darlings have a lot more **in** them in the shape of easy operation, unusually long life, and fewer repairs.

This extra measure of service, right out on the line, is the reason why so many of the larger oil and natural gas companies have standardized on Darling Gate Valves.

Our Catalog contains complete information about Darling Gate Valves. To get your copy just fill in and mail the coupon.

DARLING VALVE & MFG. CO.,
Williamsport, Pa.

Please send us a copy of the Darling Catalog No. 15.

Your Name .....

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Address .....

Darling Valve & Manufacturing Co.
Williamsport, Pa.

NEW YORK LOS ANGELES OKLAHOMA CITY HOUSTON

Mid-Continent Distributors:

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Foreign Sales Manager:

H. M. HEIN, Room 1405, 152 West 42nd Street, New York, N. Y.

DARLING
GATE VALVES

ANALYSIS CONTROL PROTECTS YOUR

STEEL CASTINGS

The manufacturer who wants uniform quality in the steel castings that go into his product can be assured of it by having them made at the Texas Electric Steel Castings Company. Here they are subjected to exacting control, both chemical and physical, during the entire process

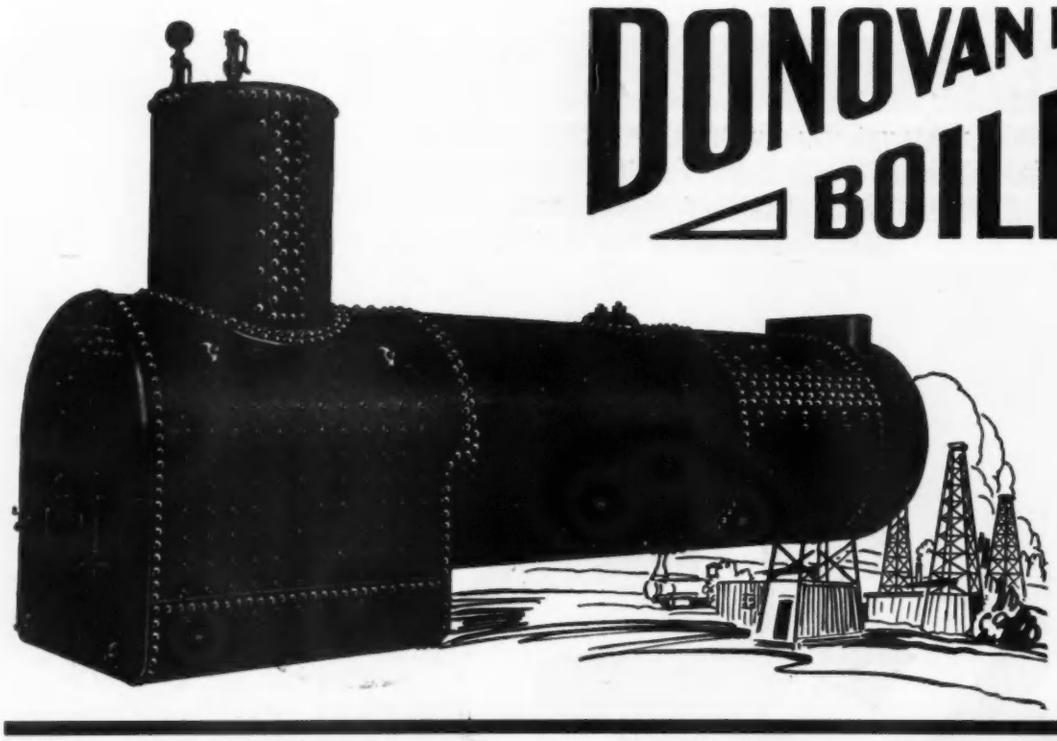
STEEL SPECIALISTS

Fireproof storage protects your patterns. ¶Laboratory control gives you uniformity. ¶Steel specialists working as a unit with modern equipment in a modern plant assures you of quality and prompt service.

TEXAS ELECTRIC STEEL CASTINGS CO.

BRINGHURST AND GILLESPIE STREETS

HOUSTON - TEXAS



DONOVAN BOILERS

THE RIGHT BOILER FOR THE OIL COUNTRY

CORRECTLY DESIGNED

Donovan Boilers are Consistently Good

STRONGLY BUILT

DONOVAN BOILERS are built A.S.M.E. Code plus.

A minimum factor of safety of five throughout, assuring plenty of reserve strength.

Materials are specially selected and the finest to be had for the intended use, carefully analyzed and tested.

Our standard of workmanship and finish is higher than required. Appearance counts and the DONOVAN will compare favorably with any.

Each boiler has a data report—the boiler's pedigree—signed only after a satisfactory test.

All holes are fair and true, drilled from the solid, or punched small and reamed to size. This is very important and seldom apparent on the surface.

Our own standards are higher than any we have ever seen or heard of. Our own tests and inspections are rigid—an additional precaution.

We know that the oil industry has many unavoidable risks, but it is never necessary to gamble on boilers.

Use DONOVANS!

Manufactured by

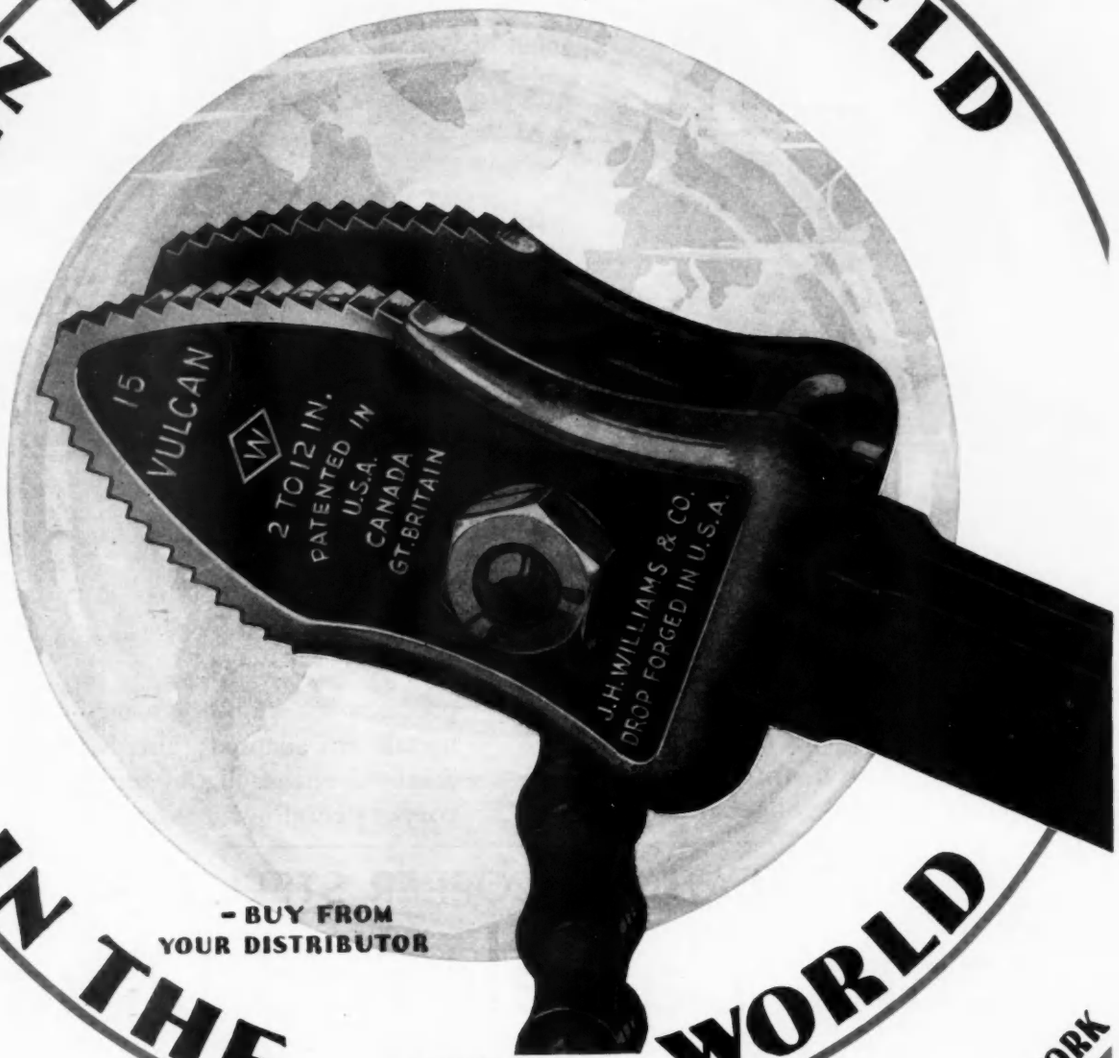
DONOVAN BOILER WORKS, INC.

PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY CORPORATION
Mid-Continent and Eastern Distributors

GREAT NORTHERN TOOL & SUPPLY CO.,
MIDLAND IRON WORKS
Montana Distributors

IN EVERY OIL FIELD

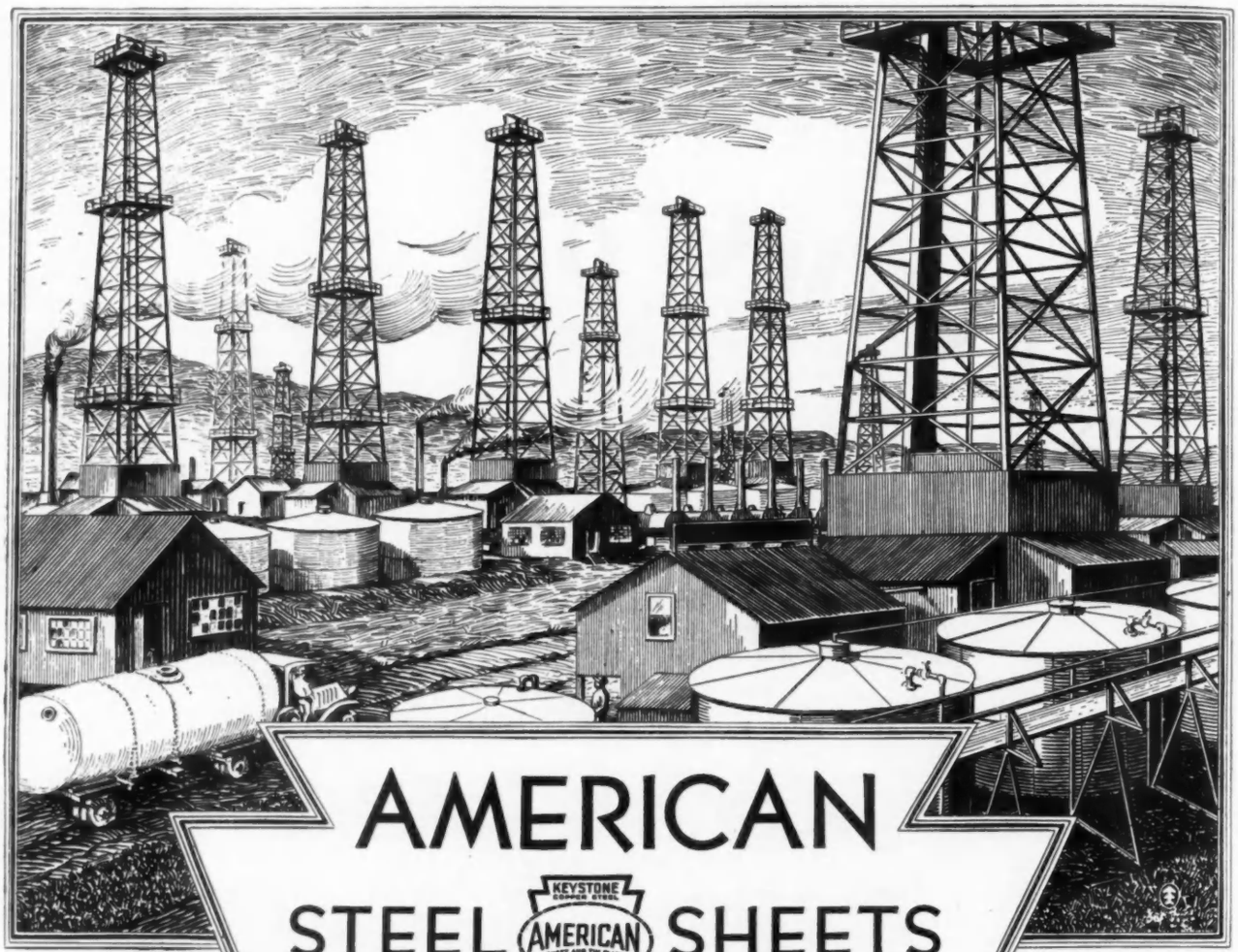


IN THE WORLD

– BUY FROM YOUR DISTRIBUTOR

GENUINE
WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"VULCAN"
CHAIN PIPE TONGS

J.H. WILLIAMS & CO. "THE WRENCH PEOPLE" 75 SPRING ST. NEW YORK
WESTERN WAREHOUSE & SALES OFFICE CHICAGO ... WORKS, BUFFALO, N.Y.



AMERICAN STEEL SHEETS

Blue Annealed — Black — Galvanized — Formed

AMERICAN products are carefully manufactured in every detail—both mechanically and metallurgically. This Company is the leading maker of high grade Sheet and Tin Mill products for all known uses to which sheet metals are adapted; also KEYSTONE Copper Steel—the original and genuine *Rust-resisting* copper steel alloy for exposed sheet metal work.

USE KEYSTONE COPPER STEEL FOR

Tanks, Barrels and Drums

AND FOR ROOFING AND SIDING

Used by prominent tank, barrel and drum manufacturers. APOLLO-KEYSTONE Galvanized Sheets are specially adapted for shops, sheds, boiler and belt houses, and oil country construction. Sold by leading metal merchants. Send for ANTI-CORROSIVE METAL booklet.

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

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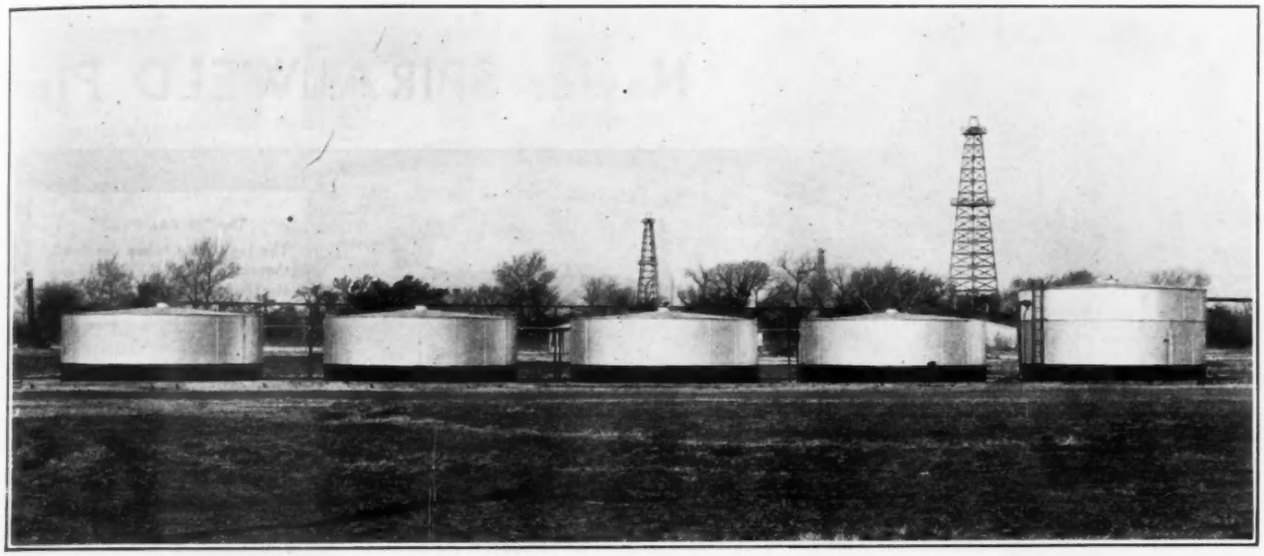
Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Now—above all times—oil producers are faced with the necessity for eliminating all unnecessary waste.



One 750-Bbl. and four 500-Bbl. Maloneys on the Wright Lease, Valley Center, Kans.

Producers who need every dollar they can get from their production should study the possibility of making more money by using our VAPOR-PRESSURE Tanks

Among the features in our Vapor-Pressure construction are: not less than 12-gauge rust-resistant Keystone Copper Steel—heavy angle ties and reinforcements—wide gussets on ties and ladders—half-inch, heat-treated bolts—first quality aluminum paint—valves set at 16-oz. pressure and 2-oz. vacuum. These tanks increase your income by eliminating breathing losses. They save you money through their exceptional durability.

MADE OF KEYSTONE AMERICAN

"Alone in Quality"

MALONEY TANK MFG. COMPANY

110 N. Peoria Ave., Tulsa, Okla.

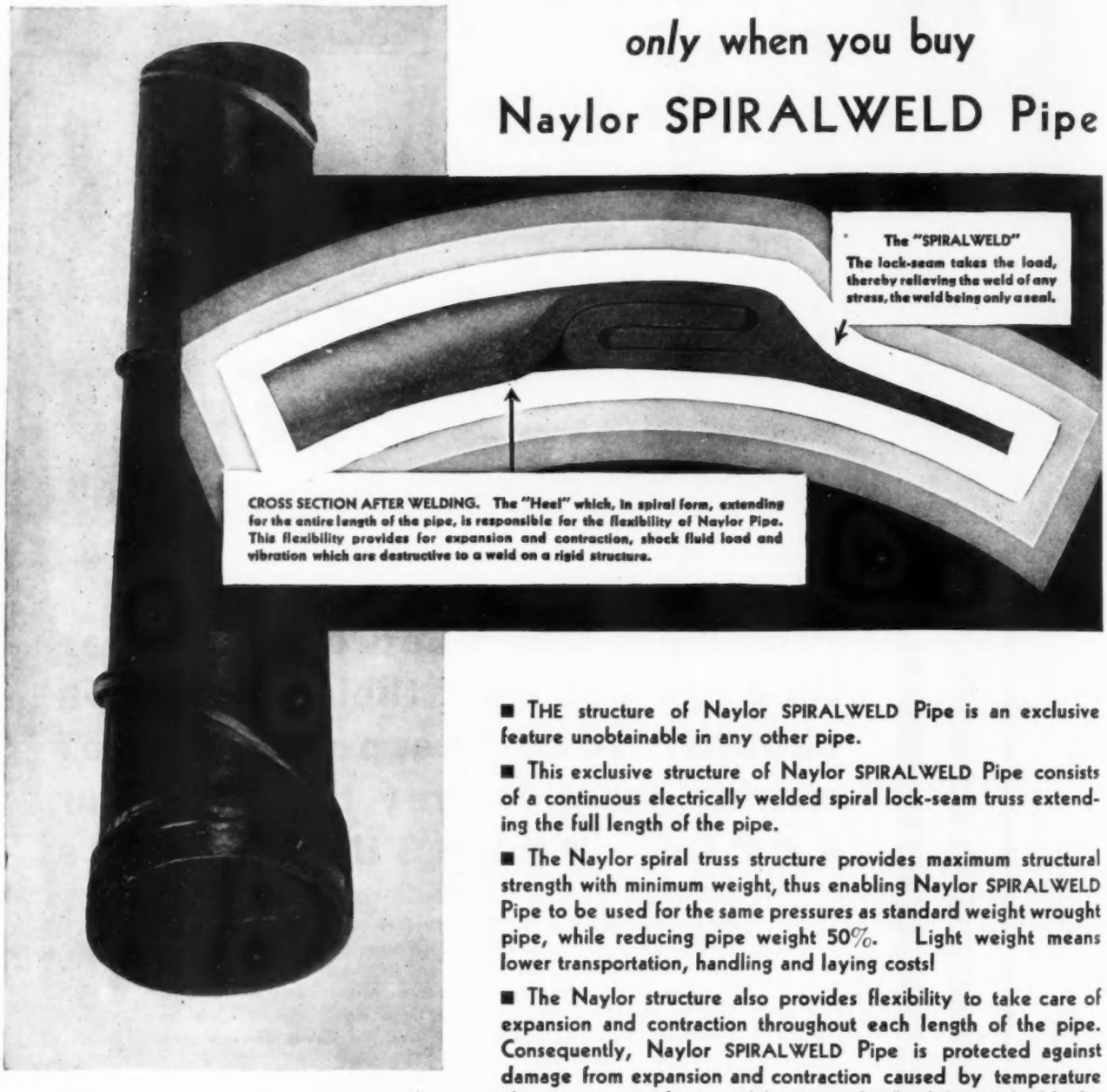
Distributers at All Principal Petroleum Points
Packed in Steel-Bound Crates for Export

MADE OF KEYSTONE AMERICAN

MALONEY

You Get The Naylor STRUCTURE

only when you buy Naylor SPIRALWELD Pipe


The "SPIRALWELD"
The lock-seam takes the load, thereby relieving the weld of any stress, the weld being only a seal.
CROSS SECTION AFTER WELDING. The "Heel" which, in spiral form, extending for the entire length of the pipe, is responsible for the flexibility of Naylor Pipe. This flexibility provides for expansion and contraction, shock fluid load and vibration which are destructive to a weld on a rigid structure.

■ THE structure of Naylor SPIRALWELD Pipe is an exclusive feature unobtainable in any other pipe.

■ This exclusive structure of Naylor SPIRALWELD Pipe consists of a continuous electrically welded spiral lock-seam truss extending the full length of the pipe.

■ The Naylor spiral truss structure provides maximum structural strength with minimum weight, thus enabling Naylor SPIRALWELD Pipe to be used for the same pressures as standard weight wrought pipe, while reducing pipe weight 50%. Light weight means lower transportation, handling and laying costs!

■ The Naylor structure also provides flexibility to take care of expansion and contraction throughout each length of the pipe. Consequently, Naylor SPIRALWELD Pipe is protected against damage from expansion and contraction caused by temperature changes or ground stress. Moreover, the flexibility of the Naylor structure protects the pipe against shock fluid loads and vibration.

■ In addition to its unique structural advantages, Naylor SPIRALWELD Pipe also has LONG LIFE. It is made of Toncan Iron—the corrosion-resisting alloy of iron, copper and molybdenum. Write our nearest office for further data.

TRADE MARK
NAYLORPIPE

NAYLOR PIPE COMPANY, Main Office & Plant, 1230 E. 92nd St., CHICAGO

SALES OFFICES

NEW YORK
3116 Chrysler Building

PHILADELPHIA
Witherspoon Building

TULSA
507 Philtower Building

HOUSTON
2301 Commerce Street

FT. WORTH: 402 Petroleum Building

PIPE CARRIED IN STOCK at CHICAGO, HOUSTON AND LOS ANGELES

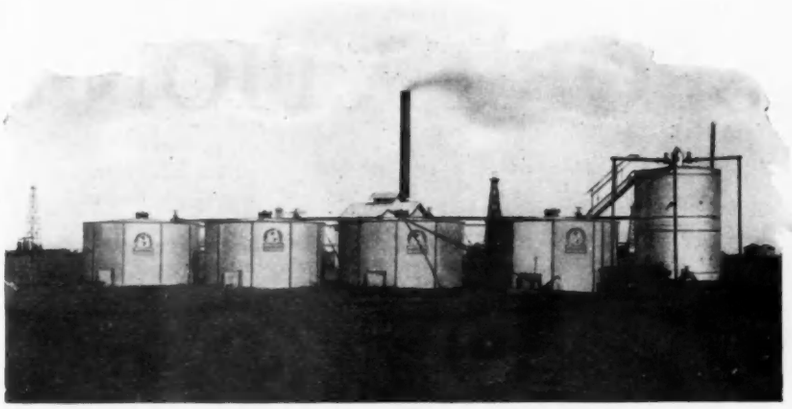
LOS ANGELES: Champion & Barber, Inc., 576 Subway Terminal Building., Exclusive Distributors: California, Nevada and Arizona

MONTREAL, CANADA: Mechanical Equipment Company, 660 St. Catherine St., West

VANCOUVER, B. C.: Gordon & Belyea, Ltd., 101 Powell Street

MEXICO: C. H. Elstner, Apartado 284 Monterrey N. L.

SAFE ALL-WAYS

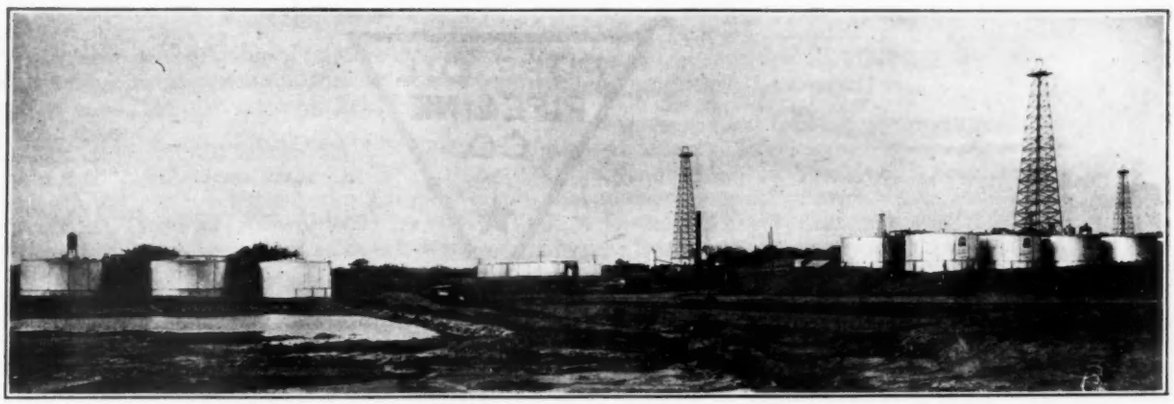


Typical COLUMBIAN installation in Pampa, Texas.

. . . in every climate, under every conceivable condition. COLUMBIAN Bolted Tanks will safely store your liquid dollars.

. . . Made of the finest grade copper-bearing, blue-annealed steel by master-craftsmen, — with tight-fitting, reinforced seams, highly sensitive relief-valves and conveniently located outlets and clean-outs.

Inquiries are invited on these as well as on COLUMBIAN Floating Decks, both leaders in their class.



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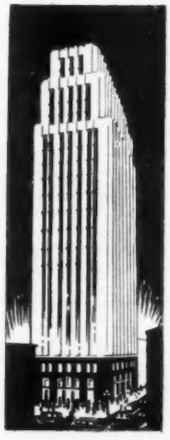

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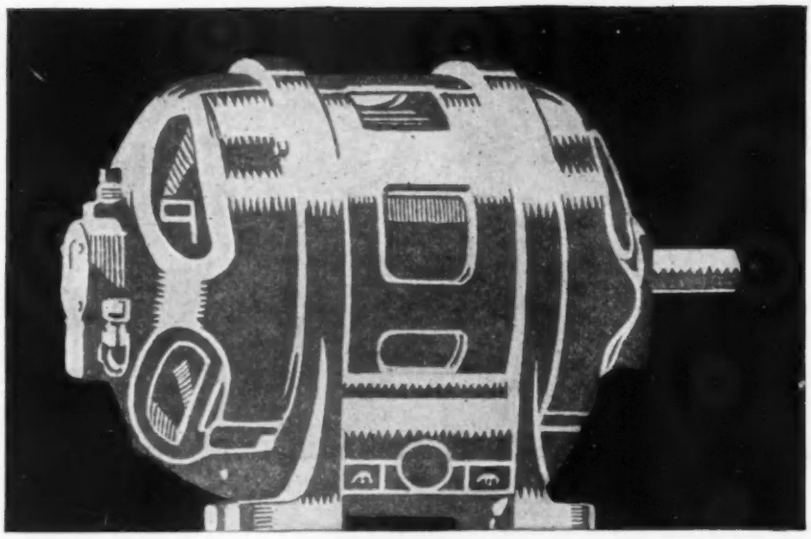

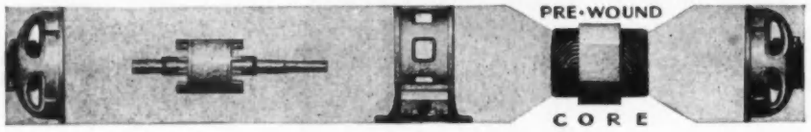

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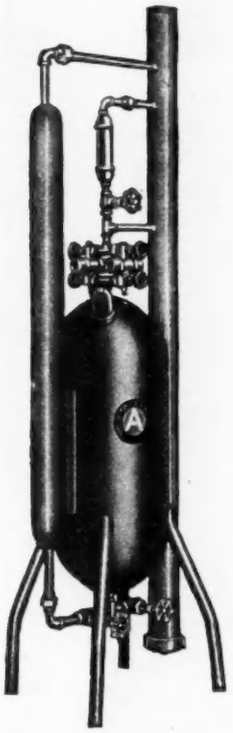

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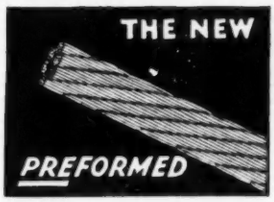

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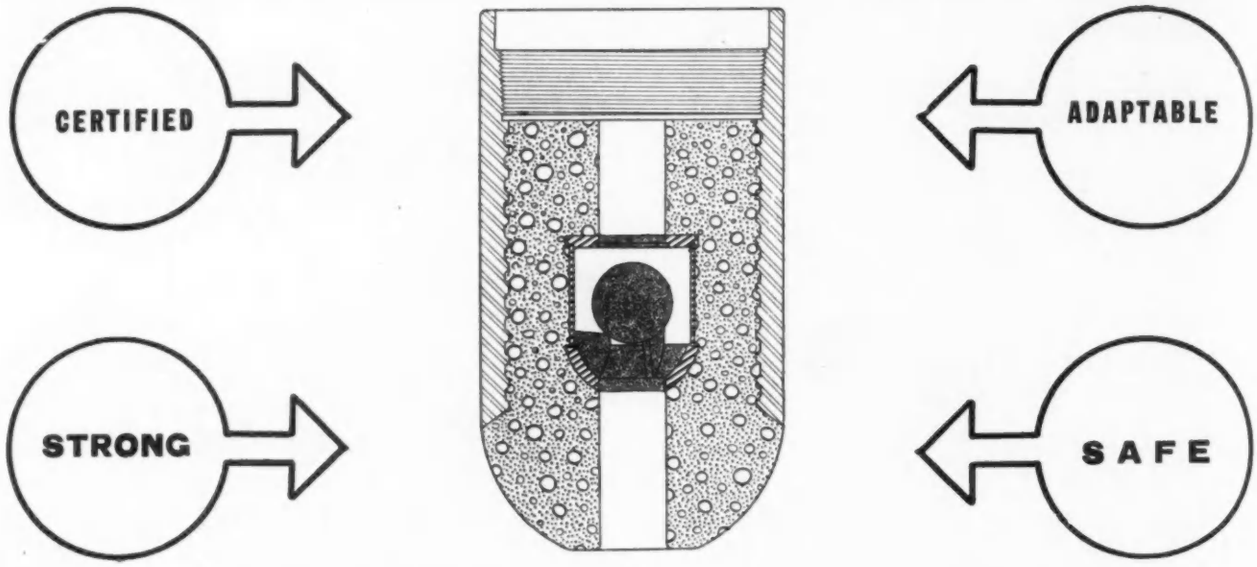

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THE OIL WEEKLY

MAY 8, 1931
Vol. 61, No. 8

S. W. ROBINSON
Editor

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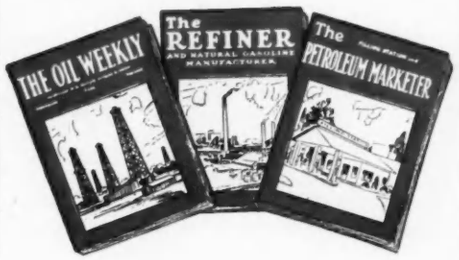

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THE OIL WEEKLY

VOLUME 61, NO. 8 MAY 8, 1931

THE WEEK'S NEWS

Austin, Texas.—The oil states' committee adjourned here May 5 to meet again in Denver, Colorado, August 10. Invitations are being sent out to oil states governors, attorney generals and legislative committees. Before adjournment, Public Service Commissioner Hill of Kansas invited all present to attend the oil meeting scheduled for May 8 in that state.

Oil Pact Success Hinges On Action of Legislatures

Austin, Texas.—Further steps toward an interstate oil compact were taken here May 4, when members of the Oil States Advisory Committee met at the invitation of the Texas legislative oil committee, of which Governor Ross Sterling is chairman. The meeting was held for the purpose of discussing in detail proposed legislation for the formulation of uniform conservation laws for Oklahoma, Kansas, Texas, Arkansas, Louisiana, New Mexico, Wyoming, California, and other states wishing to join this movement. Representatives from all the above states were present at the meeting, including chairman Cicero I. Murray and chairman of the legal sub-committee, Warwick M. Downing, of Colorado.

With realization that little can be accomplished without legal sanction of the legislative bodies of the oil producing states involved in the proposed compact, it was decided to prepare and submit a preliminary draft of the proposals made by the Oil States Advisory Committee. Accordingly, a draft of the compact was drawn up by members of the committee, under the direction of Cicero I. Murray and Warwick M. Downing. The tentative draft, presented at a dinner meeting on the evening of May 4, set forth definitions of waste and means for its prevention through state legislation. The proposed pact would create in each of the oil producing states involved a commission empowered by the respective states to administer and carry into effect the terms and provisions of the pact and to enforce the petroleum conservancy laws proposed.

Sharp dispute over the oil situation in Texas arose during the morning session when Thurman Hill, public service commissioner of Kansas, stated that Texas is the guiltiest party in over-production of oil, and unless drastic action is taken to prevent excessive production in Texas it will be difficult to make other states enact conservation laws. Warwick M. Downing, of Colorado, stated that his advices indicate that Texas is producing oil in excess of market needs and has undoubtedly shown itself to be the worst offender in over-production at present. Other remarks concerning the situation in Texas, particularly in East Texas, coming from others present, caused C. V. Terrell, chairman of the railroad commission, to rise and offer an explanation of conditions contributing to over-production in this state. He said that many outside Texas are evidently not familiar with the conditions that make it difficult to enforce proration. He cited the fact that the railroad commission was enjoined by the court from enforcing proration in East Texas, and that it was only possible to launch proration measures there by agreement with the operators themselves. He also stated that he believes Texas, with its vast potential supply of oil, is probably prorated to a greater extent now than perhaps any other oil producing state.

Need for Definite Action

Cicero I. Murray said that there is urgent need now for definite action to bring the production of oil in the United States down to a point below actual demand, in order that the petroleum industry can reduce enormous supplies of stored oil for which there is no longer any justification. He stated that while it is realized that sound conservation of oil resources cannot be maintained without some form of legal sanction, it is imperative that each state take the initiative and endeavor to bring about some form of relief for distressed oil operators. He also pointed out that it may take two years or more before the oil producing states can enact legislation along the lines proposed in the interstate oil pact, but said that the industry cannot wait until all of the legal machinery can be placed in motion to effect the desired results. His concluding remarks were to the effect that any further delay in placing into motion the principles outlined by the Oil States Advisory Committee would result in placing the oil industry into the hands of a few large companies and the destruction of thousands of wells and their operators.

Scott Heywood, representing the Governor of Louisiana, stated that in his opinion it should not be necessary to carry on separate meetings in each of the oil states involved, and that to do so would only delay the initiation of constructive legislation. He proposed that the tentative draft be submitted immediately to the legislative bodies of each oil producing state and to urge the early adoption of some emergency measures that would

(*Continued on page 108*)

Only Twelve States Without Natural Gas Service

By H. J. STRUTH
Staff Economist

SO rapidly have natural gas distribution facilities been expanded that comparative data for even a year ago reveals astounding changes. In fact, an up-to-the-minute picture of existing and projected natural gas service facilities shows that gas lines now extend to 30 states, the District of Columbia, Canada and Mexico. Including lines projected or actually under construction reveals that but 12 states are as yet deprived of natural gas service. The records for 1929 show that 22 states and the District of Columbia had not as yet joined the ranks of natural gas consumers.

The accompanying map, Figure 1, shows the remarkable expansion that has taken place in the facilities for natural gas distribution. This map shows the directional movement of natural gas from producing to consuming points, along with projected developments that will embrace additional consuming areas within the present year. It will be noted that natural gas is now, or will be, available to a majority of the states, leaving but 12 states open for further expansion. Since most of the states remaining without natural gas service are located in the northeastern and southeastern part of the United States, it is seen that a material incentive is offered for continued expansion. It is not at all improbable that the completion of lines now under construction will be followed by extensions that will ultimately include Massachusetts, Connecticut, Rhode Island, New Jersey, Delaware and North and South Carolina.

Final figures for 1929, compiled by the United States Bureau of Mines, show that the interstate movement of natural gas amounted to a total of 43,940,000,000 cubic feet, a gain of more than 29,000,000,000 cubic feet over 1928. While data for 1930 is not available, it is believed that somewhat less gas was transported to consuming points during that year, as a result of curtailment in many lines of industry. This is indicated by a preliminary survey of natural gas marketed for 1930, which shows a slight decline in total compared with 1929. The change is graphically shown in Figure 2.

More Gas Treated

On the basis of natural gasoline actually produced in 1930, it is found that about 2,000,000,000,000 cubic feet of natural gas was treated for the recovery of gasoline. This represents an increase over 1929 of about 41,000,000,000 cubic feet. However, data from producing areas of the United States indicate that a considerable quantity of natural gas was blown into the air, following recovery of gasoline from wet gas. The records for 1929 show that about 42,000,000,000 cubic feet of stripped natural gas was blown into the air. A preliminary survey for 1930 indicates that about 103,000,000,000 cubic feet of natural gas was blown into the air, or about 61,000,000,000 cubic feet more than was wasted in 1929. Although strenuous effort was made to prevent the waste of natural gas during 1930, particularly in California, it is apparent that the success of such efforts was considerably more than offset by conditions which developed in other areas. Supporting this conclusion is reported waste encountered in the development of oil production in such prolific fields as Oklahoma City, Big Lake and Panhandle, Texas.

Despite the fact that natural gas distribution facilities were greatly expanded during 1930, the facts indicate that the quantity of natural gas marketed during that year was slightly lower than in 1929. Nevertheless, actual production, including gas blown into the air, is believed to have aggregated an increase of 41,000,000,000 cubic feet over the total for 1929. Figure 2 shows the trend of marketed natural gas production from 1923 to 1930, inclusive, the latter

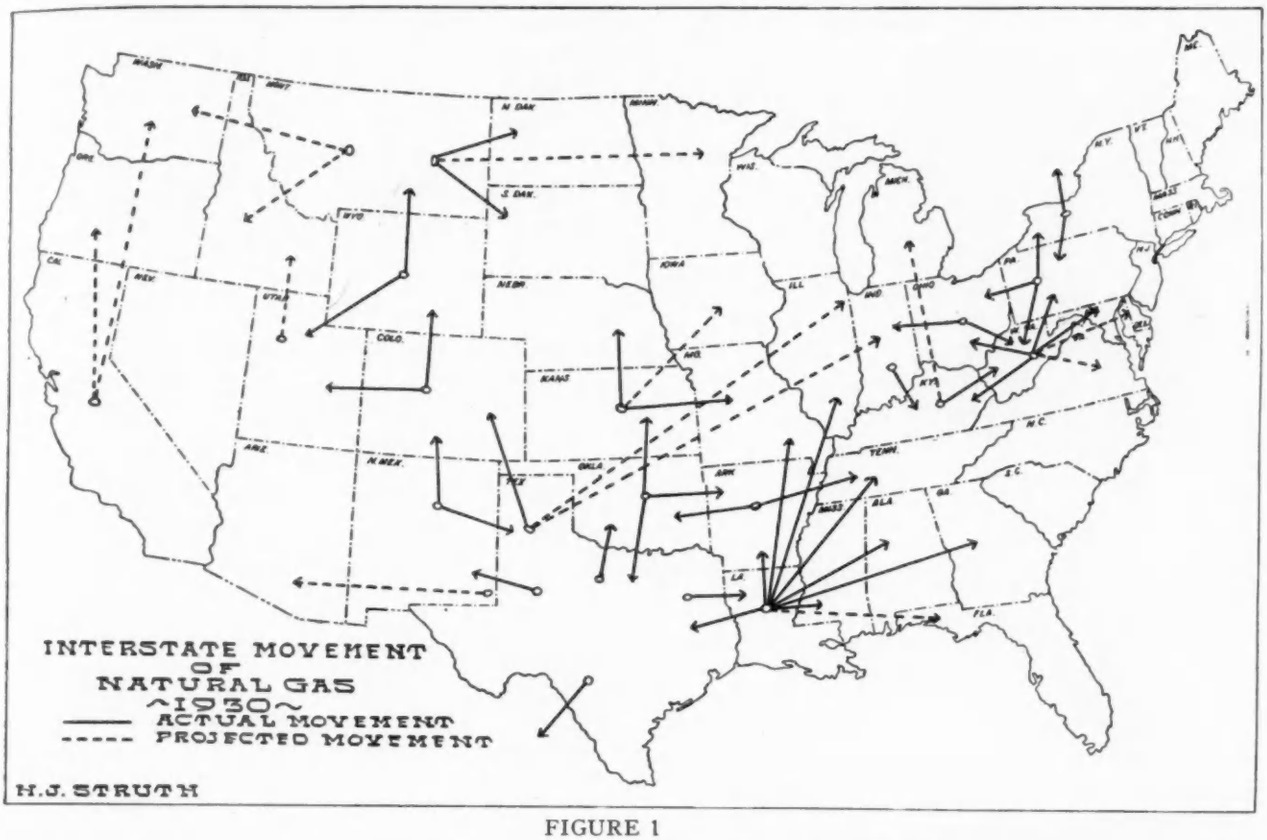


FIGURE 1

year's total being estimated. Further analysis indicates that there was a further sharp gain in domestic consumption of natural gas during 1930. Judging from the number of cities and towns connected to long distance transmission lines in 1930, it is apparent that domestic consumption increased to a total of about 400,000,000,000 cubic feet, a gain of about 40,000,000,000 cubic feet over 1929. Data for industrial consumers, however, would indicate that gains in some departments were more than offset by declines in others. For example, the carbon black industry is credited with a total natural gas consumption in 1930 of about 266,000,000,000 cubic feet, or only slightly more than was consumed in 1929.

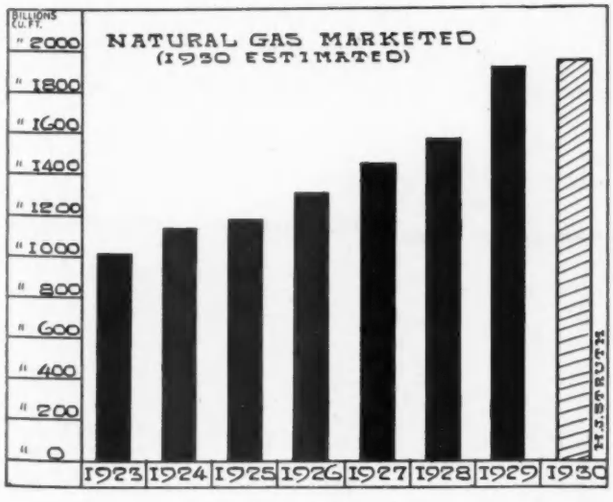


FIGURE 2

Consumption for 1929 showed a gain over 1928 of more than 86,000,000,000 cubic feet.

Use in Drilling Declines

The slump in oil well drilling during the past year has also had some influence upon lessened consumption of natural gas. While no official data is available to show how much natural gas was actually consumed in drilling operations, it is believed that the records will show a decline of more than 100,000,000,000 cubic feet. Then, too, there was undoubtedly a decline in the consumption of natural gas in industrial plants in various sections of the country. Particularly is this expected in the boiler fuel markets, where many manufacturers have resorted to the utilization of extremely low-priced fuel oil. On the other hand, there was a gain in consumption of natural gas for the production of electric power. On the whole, whatever change occurred during 1930 was probably in the direction of slightly lower consumption, rather than increased consumption. Nevertheless, the slight dip in the consumption curve is of no significance as to the future trend.

That the growth of the natural gas industry is destined to reach proportions far greater than present figures indicate is apparent from the evident necessity for continued expansion of lateral lines. In fact, a number of long-distance lines now under construction will furnish the nucleus for greatly widened distribution facilities to cities and towns laterally located. Estimates of natural gas pipe line mileage indicate that the total amounts to about 154,000 miles, consisting of about 88,000 miles of trunk lines and about 66,000 miles of gathering and distribution lines. Contemplated construction of natural gas pipe line for 1931 may result in an added mileage of about 15,000 miles, of which perhaps 9000 miles will consist of trunk lines. The accompanying map gives some idea of the probable construction of trunk lines this year.

STANLEY GILL

Prevention of Soil Stress

By STANLEY GILL, *Research Department*
Gulf Oil Companies

THE work of Dr. Gordon N. Scott[1] has directed the attention of the pipe line industry to the importance of mechanical action of soil upon bituminous coatings as a major controlling factor in their deterioration in underground service.

Since the initial presentation of Dr. Scott's findings, much attention has been devoted to effective means for the mitigation of soil stress action. Attempts to accomplish this result have followed two lines. Considerable progress has been made in the development of enamel coatings which are able, as a result of their inherent physical characteristics, to withstand soil action quite satisfactorily. In some cases, these changes have resulted in the sacrifice of other desirable properties of the enamel coatings, and resistance to soil stress action had been secured at the cost of increased brittleness of the coating materials. There are at present available on the market a few commercial pipe line enamels, which are not excessively brittle, and which possess a satisfactory resistance against ordinary soil stress effects. However, none of these materials is satisfactorily resistant to extremely severe conditions of soil stress. In addition, they cannot be applied in cold weather without fluxing, and this greatly decreases their resistance to mechanical destruction. It has been reported that one of these newer type enamels was successfully used in cold weather without fluxing; it cracked considerably during application, but the surface was washed with flux. This sealed over the surface of the cracks before water could enter them; as a result, the cracks healed completely after the pipe had been buried.

Despite the improvement of pipe line enamels to meet soil stress conditions, it is still true that wrappers are necessary for protection against soil stress where severe conditions are experienced.

The nature of soil stress has been made so familiar through Dr. Scott's excellent papers that it need not be described here. Figure 1 illustrates an extreme case of soil stress action. This took place in a period of six months and in a location in which the line was alternately wetted and dried.

A more normal soil stress action is shown in Figure 2. In Figures 3 and 4 the efficacy of a loose wrapping of felt in protecting the enamel which was shown in Figure 2 is illustrated. Although the enamel shown in Figures 3 and 4 had been ex-

[1] Trans. 9th Annual Meeting, American Petroleum Institute, Section 1, p. 78. Trans. 10th Annual Meeting, American Petroleum Institute, Section 4, p. 136. C. F. Fitzgerald, Trans. 10th Annual Meeting, American Petroleum Institute, Section 4, p. 126.

FIGURE 1
Soil stress of soft asphaltic coating. Six months exposure near Port Arthur, Texas

FIGURE 2
Soil stress of a coal-tar enamel. Six months underground, Jefferson County, Texas

# of Pipe Line Coatings

posed for twice as long as that illustrated in Figure 2, it may be seen that it has suffered practically no distortion.

Figure 5 illustrates how great is the soil pressure which is experienced in certain soils. This wrapping was applied without being bonded to the underlying coating of coal-tar enamel. The pressure of the back-fill has forced it into, and bonded it with, the enamel coating and has pushed the felt down, forming deep wrinkles on both sides of the pipe.

Saturated felts are far more widely used for wrapping pipe line coatings than are any other class of materials. Isolated usages of burlap, muslin and other fabrics for this purpose are still being made, particularly in the public utility field. Such materials are far less satisfactory than is a good felt, since they are all subject to rapid decay when exposed to soil.

Some operators have installed loose wrappers of cheap building paper to protect enamel against soil stress action. Such papers are subject to rapid deterioration, and their use is based upon the assumption that they will afford protection during the initial period in which the back-fill is settling, and that soil stress after this has taken place is of negligible importance. While this may be true in many cases, it is not universally so, and in many soils, stress is independent of the weight of the back-fill. For example, the coating illutrated in Figure 1 was covered with only six inches of back-fill, and the extremely severe soil stress action was the result of alternate wetting and drying of a highly colloidal soil. For this reason, the economic advisability of using inexpensive, but short-lived, wrapping materials is extremely questionable.

Many attempts are being made to develop other wrapping materials which will afford protection against soil stress. In a previous paper,[2] experiments which were being made with very thin aluminum foil for this purpose were described. Subsequent experiments with this material have proven that it is not at all suitable for the purpose, due to the fact that aluminum is rapidly corroded by soils. Figure 8 illustrates this condition. Figure 9 shows that the foil affords satisfactory protection

[2] Stanley Gill, Walter F. Rogers and S. U. McGary, Oil Weekly, January 31, 1930, page 51.

FIGURE 3

Same as enamel shown in Figure 2, but protected with a loose wrapper of 30-pound asphalt saturated, rag felt. The enamel is practically unaffected after one year of exposure, but the felt is quite badly rotted

FIGURE 4

Coating shown in Figure 2 protected with a loose wrapping of 15-pound, asphalt saturated, asbestos felt. Enamel in perfect condition after one year of exposure. The felt shows no evidence of deterioration

against soil stress during the period of its life, but the corrosion is so rapid that it does not serve any economical purpose.

Excellent results are being obtained with the use of copper foil for the same purpose. Copper is highly resistant to the action of corrosive soils. In addition, the copper foil is quite stiff, and possesses considerable mechanical strength. Figure 10 shows the protection which is afforded by a copper foil wrapping. It is significant that the pipe protected by this combination shows no corrosion after 18 months exposure on a section of line in which corrosion punctures of uncoated pipe are commonly experienced in less than two years. Comparison of Figures 10 and 11 with Figure 9 illustrates an important feature of the use of these metal foils. The coatings shown in Figures 10 and 11 were extremely thin, the thickness being less than 1/32-inch in both cases. In neither case has the coating suffered any distortion. The coating shown in Figure 11 had a thickness of more than 1/16-inch. In this case, it will be noted that the coating is deeply imprinted by wrinkles in the metal foil wrapping.

Although these metal foil wrappings are still in a purely experimental stage, it may be said that they afford considerable promise, and that the results being obtained with the copper foil are highly encouraging.

Many other wrapping materials are being investigated. Much effort is being devoted to attempts to develop wrapping materials which possess a rigidity greater than that of the felts. If such a wrapping material could be developed at a reasonable cost, and with properties which would make possible satisfactory application, it would probably be more satisfactory than the felt wrappings. A rigid wrapping would avoid the troubles which arise from wrinkling of the coating material, the effects of which are clearly shown in Figure 7. The action of a rigid wrapping material is shown in Figures 13 and 14. However, none of the wrappings of this type which are under investigation has as yet been brought to the point of commercial usage; all are more or less experimental, but interesting developments are being made.

To summarize, it may be said that effective resistance to soil stress action is being obtained by the use of felt wrappings, that pipe line enamels have been very greatly improved in respect to resistance to soil stress, and that experimental work which is now in progress gives promise of development of new protective wrappings which will greatly increase the effective life of bituminous pipe line coatings.

FIGURE 5

Asbestos felt wrapping similar to that shown in Figure 4. This was applied as a loose wrapping. The photograph shows how soil pressure has bonded it to the pipe and formed a deep wrinkle down the side

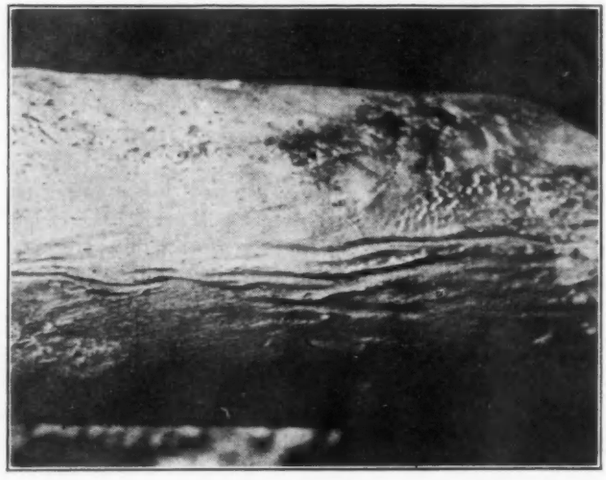


FIGURE 7

Same enamel and exposure as Figure 6. This enamel was, however, protected by an unbonded wrapping of asbestos felt

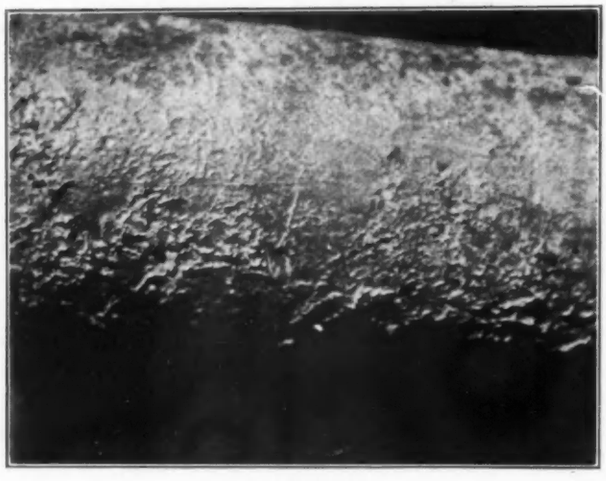


FIGURE 6

165° *melting point coal-tar enamel soil stressed after six months burial in Spindletop field*

FIGURE 8

.002" *aluminum foil over grease. Six months underground in Spindletop field*

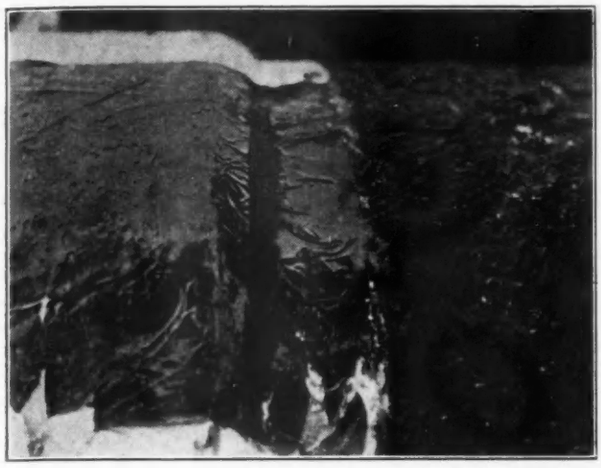


FIGURE 9
Protection of thick asphaltic coating by aluminum foil. The section on the right was not coated while that on the left was covered with foil

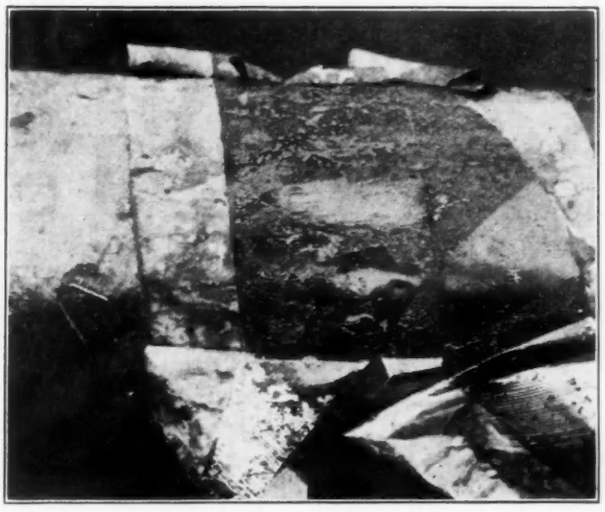


FIGURE 10
Protection of a very thin asphalt cut-back coating by .002" copper foil. The coating is absolutely unaffected, the pits which appear in the picture have been caused by removal of coating in stripping back the foil. This protection was still effective after 18 months exposure, while the unprotected coating on the adjacent joint of pipe had disappeared completely after six months

FIGURE 11
Asphaltic cut-back coating under .001" copper foil. Six months underground in Spindletop field. The same coating without a wrapping material had failed completely in this period, more than 50 per cent having disappeared from the pipe

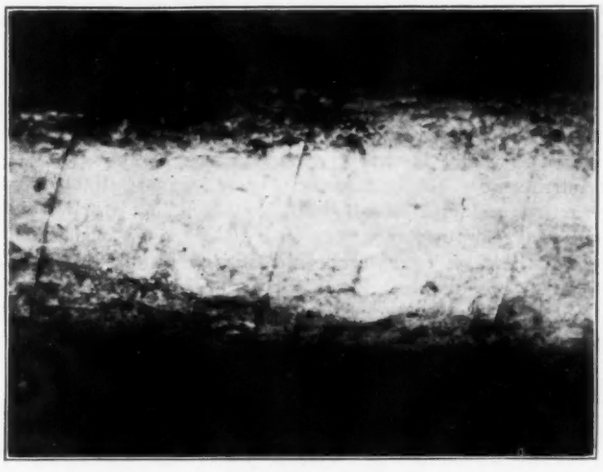


FIGURE 12
.002" copper foil over grease. Six months underground in Spindletop field

FIGURE 13
Sewed wood veneer, spirally wrapped over a coal-tar enamel

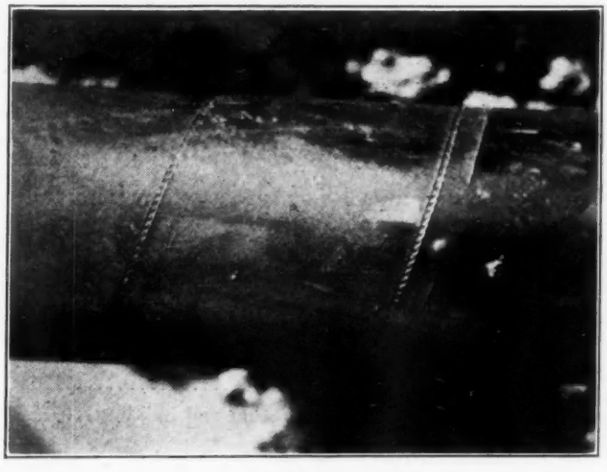


FIGURE 14
Enamel which was covered by the wood veneer wrapping shown in Figure 13

Large Outlet Available for East Texas Crude

Existing Pipe Lines, Railroad Facilities and Refineries Have Capacity Above 375,000 Barrels Daily

By JACK LOGAN
Staff Representative

THE whirlwind pace set by producers in developing the new East Texas field has been matched by equal rapidity on the part of pipe line companies, railroads, refiners, and crude marketers in building up means for handling the flood of oil which has been released.

Production climbed the past week above 300,000 barrels daily, demonstrating that at least that volume of crude could be successfully handled day after day; and a detailed survey of the facilities already existing in the Longview, Kilgore and Joiner areas reveals actual outlets for over 375,000 barrels of crude daily, exclusive of storage tanks, and not counting the present demand for about 10,000 barrels of oil daily in drilling operations.

Furthermore, there is under way additional refinery construction and pipe line building or expansion work which will result in total capacity for handling over 500,000 barrels of the East Texas crude oil daily by June 15 or July 1. Whether or not the facilities will be utilized to their capacity will depend, of course, upon the results of proration efforts and upon the future performance and capabilities of the field itself.

The accompanying table giving a "Summary of All Outlets for East Texas Crude," shows the daily capacities of the various existing facilities for handling the oil, together with the additional facilities which will be afforded through work which is actually under way. That general table, in turn, has been drawn up from the more detailed accompanying tabulations made from thorough survey of pipe lines, railroad facilities, and refineries already in operation or under construction.

The present capacity for handling nearly 400,000 barrels of East Texas crude daily and the prospective outlet for more than 500,000 barrels daily within a brief time appear particularly impressive when it is pointed out that nearly all the facilities which are involved have been built in a little over two months.

Pipe Lines

At the beginning of March, 1931, there was as yet no major pipe line system serving the field, although Magnolia Pipe Line Company and Humble Pipe Line Company had somewhat earlier started work on lines into the territory. Completion of Arkansas Pipe Line Corporation's eight-inch trunk line from Longview to Shreveport, Louisiana, gives the field its sixth trunk line outlet, each owned

SUMMARY OF ALL OUTLETS FOR EAST TEXAS CRUDE*

	Daily Capacity (in barrels)	
1. In Operation—		
Trunk pipe lines	165,000	
Refineries	14,500	
Tank car loading facilities	200,000	
Total		379,500
2. Building—		
Trunk pipe lines	70,000	
Loops and booster stations on trunk lines	35,000	
Refineries	31,000	
Total		136,000
Grand Total: In operation and building		515,500

*This tabulation takes into consideration only facilities which are in operation or under construction. In addition there are several other trunk pipe lines and refineries contemplated, and pipe line capacities as listed could be materially increased through building more pump stations.

CAPACITIES OF TRUNK LINES TO EAST TEXAS FIELDS

In Operation

Company	Approximate daily capacity: barrels
Atlas Pipe Line Company	25,000
Arkansas Pipe Line Corporation	25,000
Gulf Pipe Line Company	40,000
Humble Pipe Line Company (Van-Louisiana)	20,000
Magnolia Pipe Line Company	30,000
Texas Pipe Line Company	25,000
Total	165,000
BUILDING	
Humble Pipe Line Company (via Boggy Creek)	20,000
Sinclair-Texas Pipe Line Company	50,000
Magnolia Pipe Line Company (expansion south of Center)	10,000
Texas Pipe Line Company (expansion between San Augustine and Port Arthur)	25,000
Total	105,000
Grand Total: In operation and building	270,000

by a different company; and the seventh outlet is scheduled to begin operating probably within a week through completion of Humble Pipe Line Company's second line into the area, a 39-mile eight-inch carrier from the Joiner district to connect at Boggy Creek field, Anderson County, with an eight-inch line leading via Corsicana to tidewater.

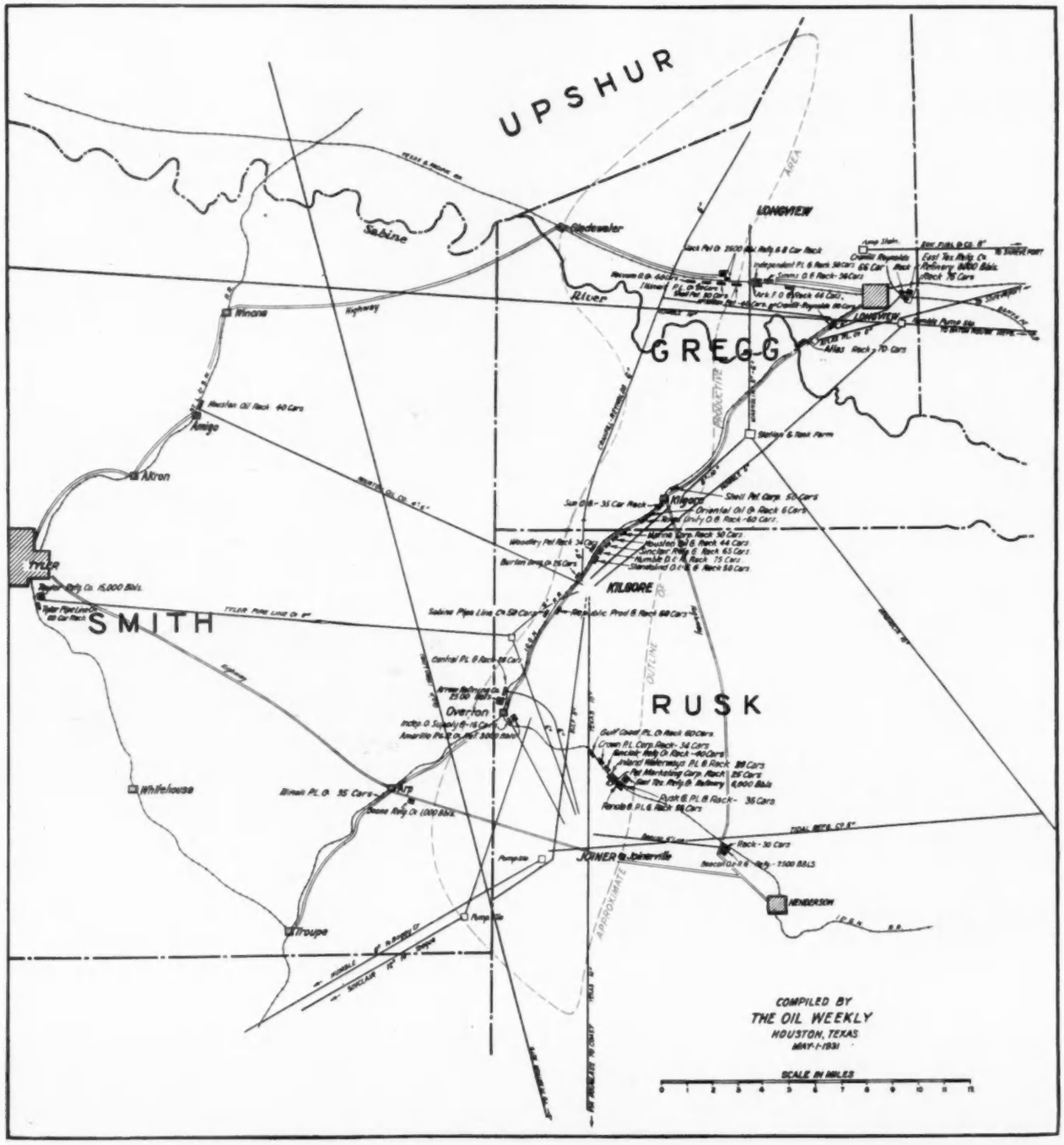
The eighth and latest trunk line definitely announced for the new East Texas field is the 90-mile 12-inch conveyor of Sinclair-Texas Pipe Line Company, for which pipe is now en route by water from Eastern mills. But work which is being done by Magnolia Pipe Line Company and Texas Pipe Line Company will result in material increases in the capacities of the East Texas systems of those two concerns.

In listing the capacity for tank car shipments from the East Texas field at 200,000 barrels daily, a conservative figure is used. All the racks which are built in the Longview, Kilgore and Joiner fields number almost 40, and they afford total capacity for over 1500 tank cars. One loading per day for each rack would constitute the handling of a total of over 300,000 barrels.

In actual practice, of course, there is much congestion in handling the exceptionally great number of tank cars, loaded

(*Continued on page 120*)

Map of East Texas Showing Facilities for Oil Shipment



FOR EAST TEXAS

"Drilling-in" requirements

. . . can be installed or removed expeditiously

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Designed to hold and suspend long strings of casing and to trap and retain fluid and gas between the casing suspended and larger size casing into which the packing head is screwed.

Pressure between casings can be regulated through flow line side openings.

Accurate packing is obtained by weight of suspended casing and bolt adjustment.

Improved Patented Combination Casing Ring and Elevator Lifting Ears

(PATENTED)

Improved Split-Type Combination Casing Ring and Elevator Lifting Ears

Engagement effected by placing around the casing in the process of lowering, pulling or suspending—without the assistance of bolts and nuts and with the increased factor of safety.

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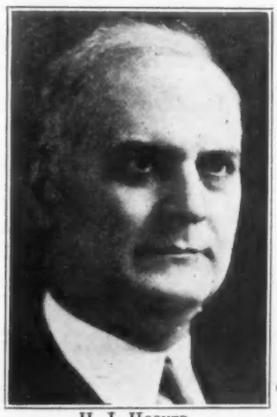
H. C. Cooper
Hope Natural Gas Company Pittsburgh.

Alexander Forward
Managing Director, American Gas Association.

R. W. Gallagher
East Ohio Gas Company, Cleveland.

B. H. Gardner
Columbia Gas & Electric Corporation, Columbus, Ohio.

L. L. Dyer
Lone Star Gas Company, Dallas, Texas.



H. J. Hoover
Cincinnati.

ANNUAL MEETING
NATURAL GAS DEPARTMENT
AMERICAN GAS ASSOCIATION

Memphis, Tenn., May 11-14, 1931

MONDAY

May 11—10:30 A.M.

Meeting of the Main Technical and Research Committee and sub-committees, Room 209, Mezzanine Floor, Hotel Peabody.

5:30 P.M.

Meeting of the Managing and Advisory Committees, Natural Gas Department, Room 211, Mezzanine Floor, Hotel Peabody.

6:30 P.M.

Annual Dinner, Managing and Advisory Committees, Natural Gas Department, Room 213, Mezzanine Floor, Hotel Peabody.

TUESDAY

May 12—9:30 A.M.

Invocation
Very Reverend Israel H. Noe, Dean of Saint Mary's Cathedral, Memphis, Tenn.

Address of Welcome
Hon. Watkins Overton, Mayor of Memphis.

Address of the Chairman
H. C. Cooper, Hope Natural Gas Company, Pittsburgh, Penna.

Address
Alexander Forward, Managing Director, American Gas Association, 420 Lexington Ave., N. Y.

Gas, Its Place in Our Time
R. W. Gallagher, East Ohio Gas Co., Cleveland, Ohio.

Selling Natural Gas
B. H. Gardner, Columbia Gas & Electric Corp., Columbus, Ohio.

TUESDAY

2:00 P.M.

Natural Gas Statistics—Their Value
L. L. Dyer, Lone Star Gas Company, Dallas, Texas.

Wrinkles
H. J. Hoover, Cincinnati, Ohio.

Our main Technical and Research Committee
H. D. Hancock, Henry L. Doherty & Co., New York, N. Y.

Gas Measurement
H. S. Bean, U. S. Bureau of Standards, Washington, D. C.

Pipe Line Flow
W. B. Berwald, U. S. Bureau of Mines, Bartlesville, Okla.

Gas Well Deliveries
E. L. Rawlins, U. S. Bureau of Mines, Bartlesville, Okla.

Utilization Research and Gas for Cooling
E. D. Milener, American Gas Association, New York, N. Y.

Compression and Transmission of Natural Gas
P. McDonald Biddison, Southern Natural Gas Corp., Birmingham, Ala.

(See next page please)

E. D. Milener
American Gas Association, New York.

P. McDonald Biddison
Southern Natural Gas Corporation, Birmingham.

E. D. Hancock
Henry L. Doherty & Company, New York.

H. S. Bean
U. S. Bureau of Standards, Washington, D. C.

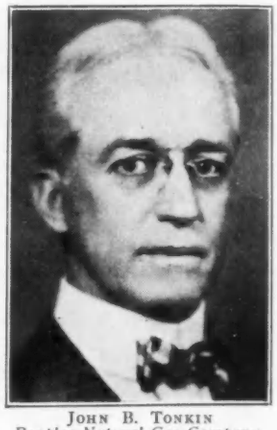
W. B. Berwald
U. S. Bureau of Mines, Bartlesville, Oklahoma.

E. L. Rawlins
U. S. Bureau of Mines, Bartlesville, Oklahoma.

H. L. Montgomery
The Empire Companies, Bartlesville, Oklahoma.

J. French Robinson
Hope Natural Gas Company, Pittsburgh.

B. M. Nowery
United Gas Public Service Company, Houston.



John B. Tonkin
Peoples Natural Gas Company, Pittsburgh.

E. N. Watkins
Arkansas Natural Gas Corporation, Shreveport.

J. A. Martin
Lone Star Gas Company, Dallas, Texas.

WEDNESDAY

May 13—9:30 A.M.

Drilling Symposium

The entire morning will be given over to a discussion of drilling. Each speaker, following a prescribed outline for easy comparison, will give a presentation on the subject covering his section of the country. After the three presentations, the meeting will be open for a general discussion of drilling.

For the East

J. French Robinson, Hope Natural Gas Co., Pittsburgh, Penna.

For the Mid-Continent

B. M. Nowery, United Gas Public Service Co., Houston, Texas.

For the Pacific Coast

To be announced later.

2:00 P.M.

Natural Gas Fellowships

J. B. Tonkin, Peoples Natural Gas Co., Pittsburgh, Penna.

A Uniform Classification of Accounts

E. N. Watkins, Arkansas Natural Gas Corp., Shreveport, La.

Detection and Prevention of Distribution System Leakage

J. A. Martin and L. B. Denning, Jr., Lone Star Gas Co., Dallas, Texas.

Modernism in Distribution Design and Operation

G. J. Heckendorn, Public Service Co., Denver, Colo.

The Origin of Dust and Its Elimination

D. A. Sillers, Lone Star Gas Co., Dallas, Texas.

Field Testing of Large Positive Meters

John C. Diehl, Metric Metal Works, Erie, Pennsylvania.

THURSDAY

May 14—9:30 A.M.

Production Symposium

The three speakers on the Production Symposium will each follow a prescribed outline and will deal with the subject for their sections of the country. The meeting will be open for a general discussion after the three presentations.

For the East

S. W. Meals, Carnegie Natural Gas Co., Pittsburgh, Penna.

For the Mid-Continent

R. M. Stuntz, Cities Service Gas Co., Bartlesville, Okla.

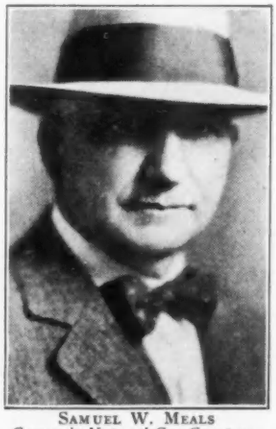
For the Pacific Coast

To be announced later.

General Entertainments

Monday, Tuesday and Wednesday.

R. M. Stuntz
Cities Service Gas Company, Bartlesville, Oklahoma.



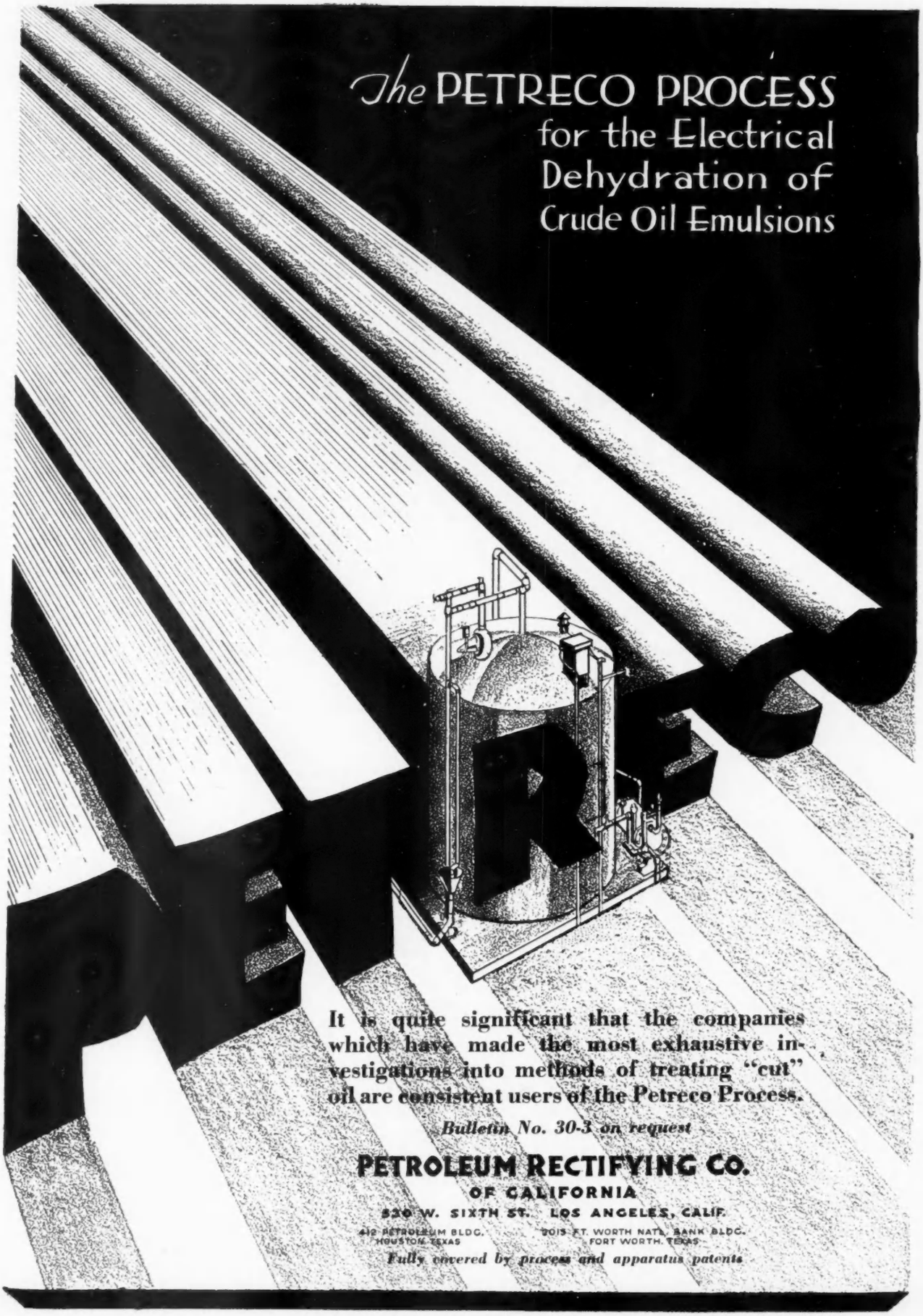
Samuel W. Meals
Carnegie Natural Gas Company, Pittsburgh.

L. B. Denning, Jr.
Lone Star Gas Company, Dallas, Texas.

G. J. Heckendorn
Public Service Company, Denver.

D. A. Sillers
Lone Star Gas Company, Dallas, Texas

John C. Diehl
Metric Metal Works, Erie, Pennsylvania.



The PETRECO PROCESS for the Electrical Dehydration of Crude Oil Emulsions

It is quite significant that the companies which have made the most exhaustive investigations into methods of treating "cut" oil are consistent users of the Petreco Process.

Bulletin No. 30-3 on request

PETROLEUM RECTIFYING CO.
OF CALIFORNIA

520 W. SIXTH ST. LOS ANGELES, CALIF.

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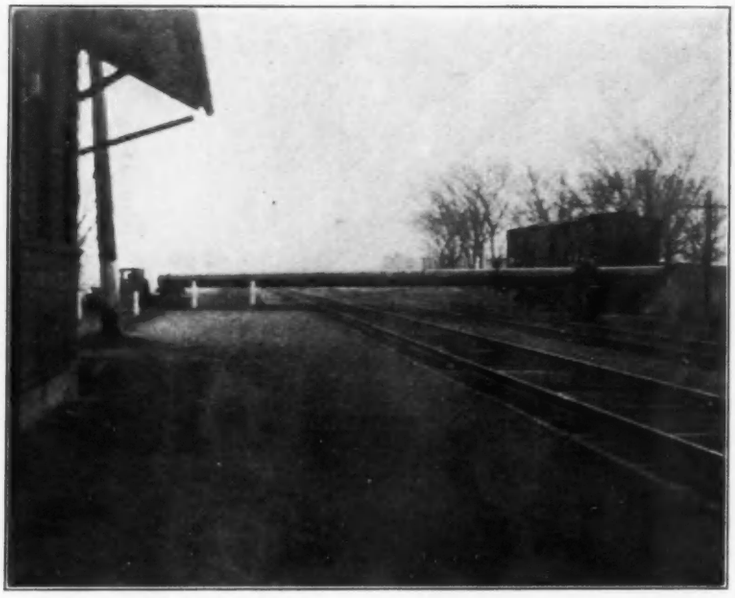
2013 FT. WORTH NAT'L. BANK BLDG. FORT WORTH, TEXAS

Fully covered by process and apparatus patents

We have built more than 7000 miles of Pipe Lines in the past thirteen years



Stringing 80 foot joints on the Continental Construction Corporation's 24" Line with special steering wheel trailers designed by the Oklahoma Contracting Corporation.

REFERENCES:

Panhandle Eastern Pipe Line Company
Ajax Pipe Line Company
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Continental Construction Corporation
Cities Service Company
Shell Pipe Line Company
Lone Star Gas Company
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More than seven thousand miles of successful pipe lines laid during the past thirteen years stand back of Oklahoma Contracting Corporation's bid on any job. An efficient organization of competent executives and workmen, a company policy of having all equipment on the ground the day before it is needed, and the buying of new equipment whenever it will speed up the job make Oklahoma's bid the most economical, although it may not be the lowest.

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Recent Developments in Oxy-Acetylene Welded Pipe Lines

By D. E. ROBERTS
Sales Engineer, The Linde Air Products Company
New York

THE year 1930 marked the beginning of a period of unprecedented activity in pipe line construction, particularly in the natural gas and gasoline divisions.

There are approximately 99,000 miles of oil lines in this country, including only the trunk and main gathering lines. In addition to this, there are approximately 57,000 miles of natural gas lines. Long distance gasoline transmission lines are comparatively new, but their growth has been so rapid that they have already attained a position of importance. It has been estimated that in the three fields: namely, crude oil, natural gas and gasoline, a total of about 13,000 miles of pipe was laid during 1930, and that the value of the new pipe line construction exceeded $300,000,000.

As this activity in pipe line construction has increased, the application of oxy-acetylene welding to the industry has increased proportionately. Close procedure control, improved welding rod, better welding equipment, and new and improved methods of welding have all contributed toward this progress.

The Lindewelder, a special blowpipe which makes welding semi-automatic

Advantage of Welded Joint

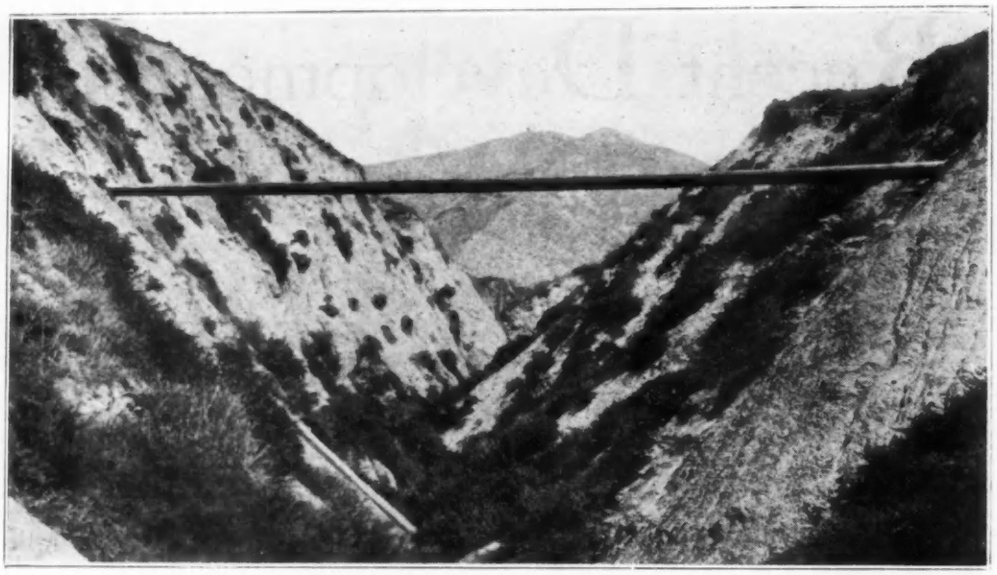
One of the outstanding advantages of the oxy-acetylene welded joint is its permanent tightness. Millions of barrels of oil have been and are being transported without the loss of a single barrel. In the natural gas field a review of published statistics on leakage will reveal the success of welding in reducing the leakage to a negligible figure. Leakage as low as 10,000 cubic feet per year per mile per three-inch equivalent has been accepted as standard, an undreamed of figure prior to the advent of welding. Practically the only leakage on a high-pressure gas line occurs in the flanged connections for valves and other attachments, which as yet have not been welded.

Since the welded joint is leakproof, there is no necessity for maintaining a crew of line walkers. On lines joined by other methods, and particularly on high-pressure lines, it is necessary to maintain a crew of men who must keep the line under constant inspection. Some companies have entirely eliminated walking crews on welded lines, and at the same time are able to reduce their claim department and emergency repair crews to a minimum.

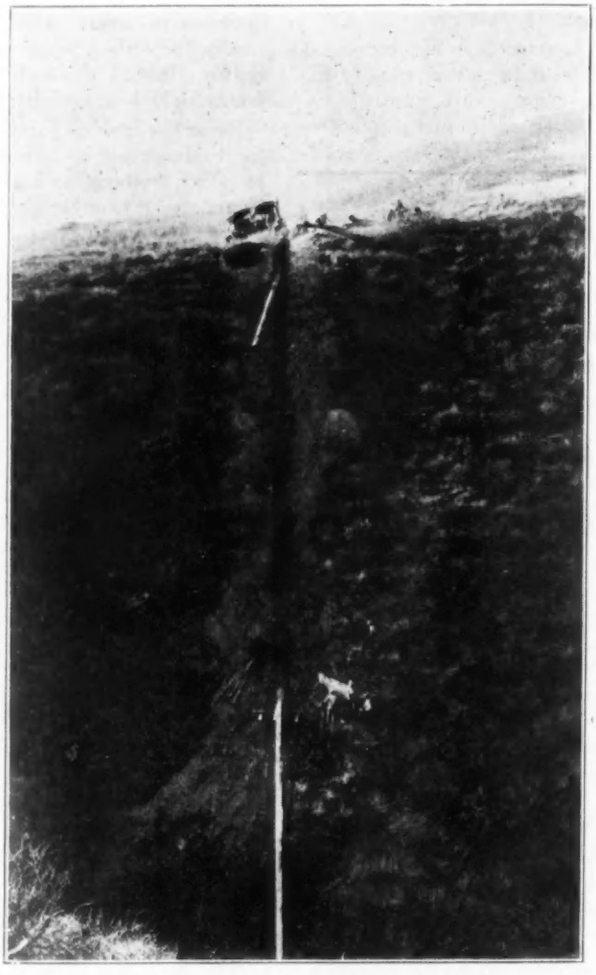
It is the general practice today to use solid welded construction for lines 18 inches in diameter or less. This practice has been followed in some cases on sizes as large as 20-inch diameter, but above 20-inch, the general practice is to use composite construction. It is necessary to use composite construction because of the stresses set up in a completely welded line of large diameter. Theoretically, the unit stresses set up in a large pipe as the result of temperature drops should be the same as for small pipe; but because of their very nature, there probably is an unequal distribution of the contraction forces in large diameters which impose higher stresses on certain elements than on others. Furthermore, differential stresses are introduced during construction which further complicate the problem. it is difficult to provide sufficient slack in the line to compensate for expansion and contraction during temperature changes. The laying of slack wallops at best provides for only about half of the contraction requirements and imposes excessively high stresses in the pipe. Of course, these stresses are only temporary and are relieved on lowering the pipe into the trench, but, nevertheless, they must be allowed for in designing the line.

Bend Stresses

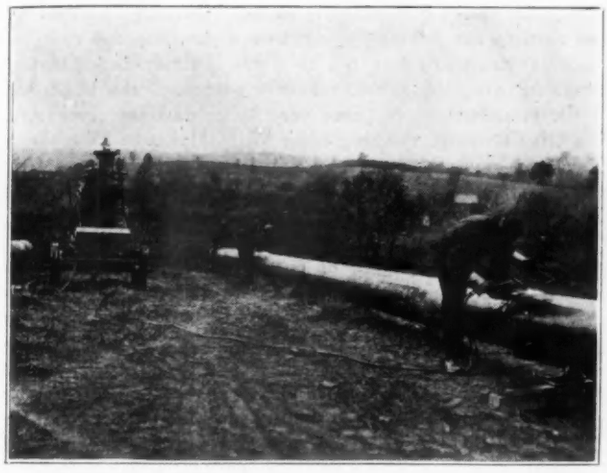
In addition to the stresses set up by temperature changes, bending stresses are caused by the contour of the ground, which cannot be minimized in the larger diameters. Smaller pipes can be easily cold bent to fit the contour of the ground very closely; but in larger pipe it is not always



Over 100 feet of welded pipe left unsupported across a canyon



Welded sections being lowered into position on a steep slope



Firing line on Lindewelded 20-inch natural gas line

Method of turning large diameter pipe

possible to bend the line with sufficient accuracy to conform to the shape of the ground closely enough to eliminate the bending stresses. As a result these stresses may become excessive. For the same deflection, the stresses will increase in proportion to the diameter, so that although they may be negligible in small diameters, they may become very high as the pipe sizes increase. If the construction be changed from that of a solid continuous tube to that of a series of free-length beams, these stresses can be alleviated. It is for this reason, as well as for simplification in construction, that composite joints have been extensively used in the larger sizes.

There is need for development of more satisfactory procedures for bending the pipe to meet the contour accurately, of providing for expansion and contraction, and of adopting practices that will assure extremely high weld quality to withstand strains set up on the circumferential joints in the construction and operation of large diameter lines. These features have received careful consideration and engineering thought, and methods have been developed which have proven satisfactory to meet the requirements, but further thought and time are necessary to put these into general practice and to speed up the construction to prove universally acceptable. One of the most recent developments which may prove of decided importance in the future construction of large lines has been the overthrow of the generally accepted theory of engineers that the maximum length of pipe between rubber couplings should be limited to approximately 100 feet. Last year a precedent was established in which lengths as long as 350 feet of solid welded pipe were used between couplings. If this practice should prove satisfactory under operation, it will lead to the welding of practically the entire line, taking advantage of the leak-proof and economical qualities of welded joints and yet containing the simplification of construction attending the use of rubber-coupled joints at long intervals.

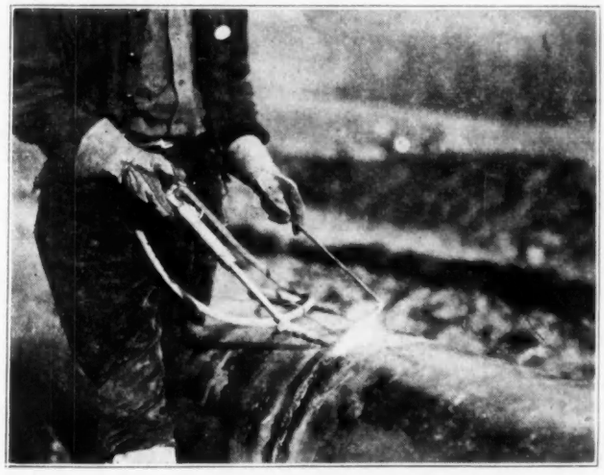
High Pressures in Gas Lines

For the transportation of gas over great distances economy has necessitated the use of extremely high pressures, which, in turn, have required special high strength pipe. Large diameter pipe is being used which has a carbon content of 0.30 to 0.40 per cent and an ultimate strength between 80,000 and 100,000 pounds per square inch. The welding industry has kept abreast of this development in material so that through the improvement in the welding procedure and through the development of special welding rod, it is possible to make welded joints as strong as the pipe itself.

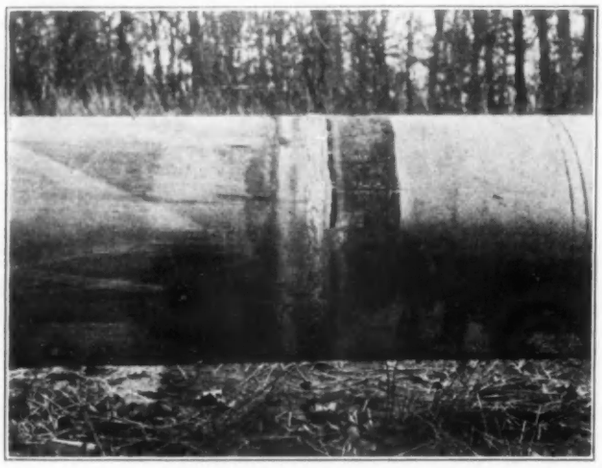
One of the outstanding improvements in welding technique is the use of a special backing up liner to aid in the welding of the joint and to give assured high quality welds. These liners are of thin material, about 1/16 to 3/32-inch thick, depending upon the pipe diameter, and from 1¼ to 1½-inch wide, and fit inside of the pipe joint under the butt weld. This liner has spacers attached to it which accurately govern the spacing and its use permits complete fusion to the full thickness of the pipe walls. In fact it is possible to reinforce the inside of the joint by fusing through to the liner and making it an integral part of the weld. All protrusions and icicles are eliminated, and yet the reinforcement is carried through to the inside of the pipe wall so that a full strength joint is obtained even without external reinforcement, which is often fallaciously assumed to compensate for a possible weakness at the bottom of the vee. The liner fits the inside of the pipe wall so snugly that there is little if any obstruction presented to the flow of the fluid.

Further means of reducing the cost and speeding up the welding operations have been given careful consideration. As a result, the cost has decreased so that today it is cheaper to weld even large diameter pipe than it was to join the smaller sizes several years ago.

A new method of oxy-acetylene welding known as the "Lindeweld Process" has recently been introduced and is meeting with success in the construction of pipe lines be-



Completing a rolling weld in 20-inch pipe



A Lindewelded joint

cause of the speed and economy possible with this method. In pipe line welding the "Lindeweld Process" has resulted in a saving of from 50 to 75 per cent of the time required to make a weld by the technique previously employed, depending upon the size of the pipe. In addition, it leads to a considerable reduction in the consumption of oxygen, acetylene and welding rod.

The "Lindeweld Process" is the result of years of laboratory research and field testing. It depends essentially upon a new method of blowpipe manipulation and upon the use of a new welding rod introduced for that purpose, known as "Oxweld No. 24 Lindeweld Process Welding Rod." The most recent development is the introduction of an entirely new design of blowpipe, known as the "Lindewelder," which makes welding semi-automatic. In this blowpipe, the welding rod is supported in a holder and feeds by gravity into the weld. The welding rod is preheated by a separate flame before reaching the welding zone.

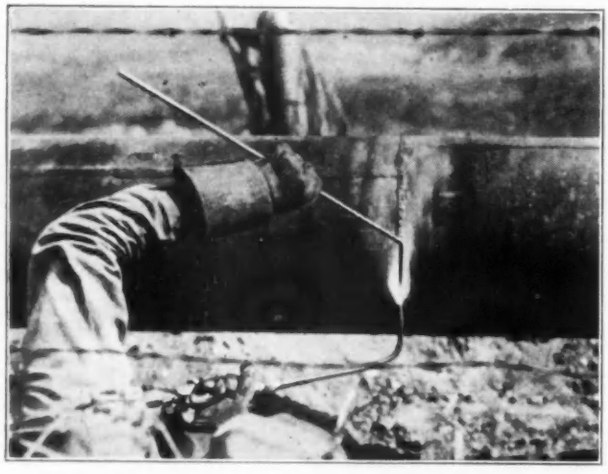
No sacrifice of quality has been made for the benefit of the increased speed. In tensile tests made in the field on specimens welded by this process, the welds have invariably out-pulled the pipe. Good ductility has also been shown in bend tests.

Gasoline Lines

The success obtained by Standard Oil Company of New Jersey in converting its line which formerly carried oil eastward to the Atlantic Coast into a gasoline line carrying gasoline westward has led to some outstanding developments in this field. The year 1930 witnessed the beginning of the construction of three very large gasoline lines: one, Sun Oil Company, running from Philadelphia to Pittsburgh, Cleveland and other cities in Ohio; second, Phillips Petroleum Company's line from Texas to Kansas City and St. Louis; and third, the Great Lakes Pipe Line Company's 1300-mile line from Oklahoma refineries to Chicago and the Great Lakes region. All of these lines are oxy-acetylene welded. The Sun Oil Company's line consists of 550 miles of six-inch pipe. It is well under way to completion. The eight-inch, 740-mile line of the Phillips Pipe Line Company has been completed. It carries a station pressure of about 750 pounds per square inch. The Great Lakes line consists of six and eight-inch seamless pipe, welded with High Test Rod, and carefully tested to 1000 pounds per square inch pressure. A station pressure of about 800 pounds per square inch will be used during operation. These last two pipe lines alone will have the ability of handling more than 200,000 gallons of gasoline a day from the Mid-Continent.

Since the engineering features in the construction and operation of these lines offer no special problem, and with the proving of the economical factor connected with their use, it is anticipated that a new large field of pipe line construction will be opened to carry gasoline to various parts of the country from the refineries of the various companies. Some of these, no doubt, as in oil transportation, may become large public carrier systems.

Higher operating pressures and higher strength pipe called for improvement in welding technique and supplies. In order to meet the demand resulting from these developments, the welding industry has faced each problem and overcome it so that it has advanced abreast of pipe line construction methods. High strength welding rods have been introduced that can meet the standards set up by the high strength pipe, commonly used on high pressure lines. Backing-up liners have been designed which facilitate the lining up of pipe and the ease of welding, and at the same time insure more thorough depth of penetration and a better joint in general. And finally, the new Lindeweld Process, by reducing the time required for making a joint by 50 to 75 per cent, depending upon the size of the pipe, has placed the oxy-acetylene method of joining on an equal time basis with any other method of construction.



Making a weld in position on 16-inch pipe

Welding a gasoline pipe line

Foreign Pipe Line Projects Will Test Skill of Engineers

By ROY E. LEIGH
Associate Editor

FOREIGN oil operations, it may be said with certain reservations, have not yet entered the pipe line phase; but indications are that the next decade will bring about many important developments in this field.

Important pipe line systems in Colombia, Russia, Persia, and Burma must be named as exceptions to the generalization expressed in the first part of the foregoing sentence, as each system in itself is a triumph of engineering accomplishment not to be passed over lightly; but all are comparatively short and are more notable for having been constructed across difficult desert and jungle terrain than for their length, diameter, or capacity. Operators in foreign fields have not yet commenced the construction of long

Shore-line well in the Negritos field, of Peru. Many of the foreign fields heretofore developed are located at or near tidewater or along navigable rivers.

trunk lines such as have characterized the progress of pipe line engineering in the United States during the last decade.

The reason is that until very recently oil exploration in foreign countries has been confined chiefly to the sea coasts, navigable rivers, or other highways of travel.

Rich or potentially rich deposits of petroleum are known or believed to exist in the remote interiors of Mexico, Venezuela, Colombia, Ecuador, Peru, Bolivia, Turkey, Syria, and Russia; and, based on the occurence of natural seepages and showings of oil and gas found in drilling for brine, the supposition is that the vast territory of China also embraces oil fields which, at least, may be found to be of considerable geographical magnitude. These supposedly fertile fields lie in regions which are backward and undeveloped, either in the political or economic sense, and for the most part are inhabited by primitive peoples having little or no immediate need for petroleum. Their oil resources, therefore, may be marketed only externally, and not then until pioneering pipe liners from other countries have constructed conduits for their transportation to seaboard.

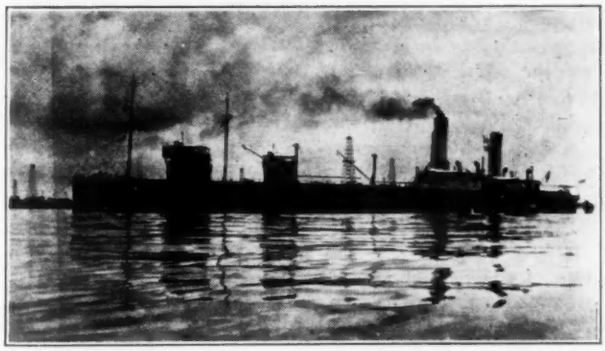
However, a day of change is dawning.

The Eastern Hemisphere probably is no less fortunate than the western in the possession of petroleum reserves; and, also, future years doubtless will reveal that South America possesses as many fields of the first magnitude as does North America. There was a time when the knowledge of petroleum engineering was virtually a national secret in America; but far-ranging well-diggers have broadcast that secret to the far corners of the earth and now the British and Dutch, at least as individuals and corporate organizations, if not yet as nations—know or have it in their reach to learn as much about drilling, production, transportation, and refining methods as is known in the United States. The Soviets are training petroleum engineers by the thousands; and the French, Mexicans, Colombians, and others are evincing a keen new interest in the education of their nationals for the exploitation of their own natural resources.

Mesopotamia

The existence of oil in Mesopotamia, or the present kingdom of Iraq, has been known since pre-Christian times; but, with the exception of primitive native operations, these vastly rich fields laid fallow until the last decade and not even yet, with the exception of small-scale operations at Naft Khaneh, has any oil been marketed from these regions.

The coming decade, however, promises to unlock these vast stores of oil, the proposed Iraq pipe line being the key to the situation. This line will not rival the great American trunk systems in length or capacity; but, nevertheless, in professional circles as well as in popular imagination, it will take rank as the world's greatest achievement in pipe line engineering. The construction of the Iraq line might not have been possible at any prior time in history, as this great undertaking will involve the close co-opera-



A unit of the Lago Petroleum Corporation's fleet of lake tankers, Maracaibo district, Venezuela. Shallow draft tankers of this type have taken the place of pipe lines in the oil fields around Maracaibo Lake.

tion of many different forces and factors which did not come to bear in Mesopotamia until after the World War.

Such a project requires: first, political conditions of much greater security than those formerly afforded by Turkish rule; and, second, military protection of such an order as can be provided only by the British Army or another force of comparable power and prestige. It will cross regions inhabited by wild and warring tribesmen who defied and defeated the Turkish authorities from the beginning until the end of the Turkish regime and whose complete pacification has not yet been accomplished. It will involve such co-operation in international diplomacy as was impossible until the political skies were cleared by the Great War; and it also will require close co-operation between military, aerial, railway, and oil interests not heretofore present or available in Mesopotamia. The British Army must patrol the right-of-way; and the Royal Army Flying Corps must be available to protect engineers, workmen, and pumping stations from attack by marauding tribesmen.

It is understood that the Iraq pipe line, the Baghdad-to-Haifa Railway and telegraph lines, and the Imperial Airways probably all will co-operate for mutual assistance and protection in the selection and use of a common right-of-way across the Syrian Desert. The proposed railway, in conjunction with the war-born line from Basra to Baghdad and Kirkuk will greatly facilitate the stringing of the pipe; and, upon completion of the system, the line-walker, heretofore a lowly pedestrian until he took to the air in Persia and Colombia, will take wings for its regular inspection. Animal transport could never have accomplished the stringing of pipe across this desert expanse, which is another reason why the exploitation of Mesopotamian oil fields had to await the coming of the automobile age.

Recent advices from London report the final settlement of the controversy between French and British interests regarding the route of the Iraq line. The long-debated question as to whether or not it should pass through French or British mandated territory is said to have been compromised to the satisfaction of both of these national interests.

It is reported that the agreement provides for a joint line from Kirkuk in a southwesterly direction across Iraq to the eastern frontier of Syria (French mandate), whence it will fork, with two or more outlets on the Mediterranean Sea. The French fork will run through Syria and will have its terminus at Tripoli, or thereabout, near Beirut; and the British branch will swing southward through Palestine (British mandate), to the Bay of Acre, near Haifa, where terminal and shipping facilities will be established to deliver the Anglo-Persian and Royal Dutch-Shell and perhaps also the American shares of oil to be produced by the jointly owned Iraq Petroleum Company.

It is reported that the Iraq-Syria section of the line will be constructed forthwith by French interests, whereas the

construction of the British section will be deferred. Pending the construction of the Palestine branch, it is said to have been agreed that oil will be transported ratably through the French section for the benefit of all concerned in the ownership of Iraq Petroleum Company.

It is interesting and significant to note in this connection that the Chamber of Deputies, by action of March 28, 1931, finally ratified the agreement by which French oil rights in Iraq were delivered into the trusteeship of the Compagnie Francaise des Petroles, an amalgamation of French oil interests, which owns a 23¾ per cent share in the Anglo-Dutch-French-American consortium operating in the new Arab kingdom as Iraq Petroleum Company, Ltd.

Projects of equally bold conception will be necessary for the exploitation of the trans-Andian fields of South America and the interior fields of Russia and China. It is only to Russia that America must yield ground in matters of distance and geography; and the Soviets, if and when they complete their enormous pipe line projects now under consideration, may capture some of the records for length and magnitude now held in the United States.

Negritos field, of International Petroleum Company, in Peru. Fields situated on sea coasts, as this one is, require but little in the way of pipe lines.

New Problems Involved

South American pipe line projects of the future will involve new problems for pipe line engineers, including the hoisting of oil over mountain ranges and to altitudes hitherto undreamed of in pipe line operation. It so happens that pipe line engineering in times past has not deviated to any great extent from the horizontal level and has not risen to any great heights above sea-level. Such problems have not been met, for the reason that oil heretofore has been taken chiefly from fields at low altitudes in the Mississippi Valley of the United States and from the sea coasts and river valleys of California, Mexico, Trinidad, Venezuela, Colombia, Ecuador, Peru, Argentina, Persia, Burma, and the Netherlands Indies. However, if oil is to be taken from Southern Colombia, the interior of Ecuador, and the Oriente of Peru—and it has been the history of the industry that all known fields are finally brought into production—pipe line engineers will have to hoist it to altitudes of 5000 to 10,000 feet in order to get through the very lowest of the mountain passes available.

Construction and operation under such conditions will require greater pump capacities, higher pressures, and different and more advanced ideas of engineering than heretofore have been employed in the industry. How interesting it would be if one could pull back the curtain of the future and see the pipe lines and pipe liners of 1941 and 1951! There have been great changes in machinery and personnel in the last two decades, but the next two may bring greater.

The completion of the great Russian projects, for example, will hinge upon further successes of a new and revolutionary system, or combination, of politics, economies, sociology, and religion.

While lines of 1000 miles or greater length are quite common in the United States, the longest line in the world outside this country is only a little more than half that length. Russia, runner-up to America in oil production, is also second in pipe line mileage. The Soviets have approximately 1600 miles of trunk lines in operation to provide outlets from the Baku, Grozny, and Maikop fields to the Black Sea. These include two lines, one of eight inches and the other of 10 inches diameter, between Baku and Batoum, a distance of 535 miles; one of 390 miles length and 10 inches diameter from Grozny to Tuapse, another Black Sea shipping port; and another of eight inches diameter from Grozny to Makhach Kala (formerly Petrovsky), on the Caspian Sea, whence oil in limited quantities is transported in small tankers across the Caspian Sea and up the Volga River for domestic consumption.

Soviets' Plans Ambitious

The Soviets have a most ambitious pipe line construction program, involving the doubling of export facilities and the building of thousands of miles of lines of large diameter ostensibly to serve domestic requirements and Eastern markets. The looping of the Grozny-Tuapse line is already under way, and multiple loops on the extreme western section of this line may be necessary to provide outlet for the flush production at Naikop without limiting that from Grozny.

The proposed line from the Caspian Sea along the Volga River to Moscow, if actually built, will take rank among the most magnificent pipe line projects in the world, having an over-all length of approximately 2000 miles. Critics of the Soviet regime profess to doubt the good faith of the proponents of this line, as its chief purpose would appear to be the service of domestic requirements and its commencement would seem to indicate a coming change in Soviet economic policy, the use of petroleum being restricted in Russia. There is, however, a possibility that

oil is to be shipped over this line, which has its terminus on the Trans-Siberian Railway, for distribution by rail to Baltic, Western European, and Asiatic markets.

Grozneft is planning a 750-mile line to convey refined products from the new refineries at Grozny to important railway and industrial centers in the Ukraine, thus relieving the single-track trans-Caucasian railway system of its burden of petroleum.

Another line is said to be planned to extend from the Emba field, on the northeastern shore of the Caspian Sea, in a general northeasterly direction into the backward and undeveloped regions of the Asiatic territory of the Soviet Union; but the actual consummation of this scheme doubtless will await the attainment, in part at least, of the Utopian ideal which is said to be the aim of the communist state.

Construction in South America

South American oil developments, up to now, and with the notable exception of the Andian line in Colombia, have required but little of pipe line engineers.

Trinidad, Britain's oil outpost in the new world, is a comparatively small island whose pipe line systems, perforce, cannot expand beyond the gathering line class, although Trinidad Leaseholds, Ltd., operates a trans-island system of considerable economic importance, and lines of lesser magnitude are operated by Trinidad Oil Felds Operating Company, Ltd., and United British Oilfields of Trinidad, Ltd. Netherlands Indian fields are likewise situated in island colonies, none being far from tidewater, as distances are judged in America. It is true, however, that the Bataafsche Petroleum Maatschappij (Royal Dutch-Shell) and Nederlandsche Koloniale Petroleum Maatschappij (Standard Oil Company of New Jersey) operate several hundred miles of lines, in the aggregate. These include the N. K. P. M. line from Talang Akar to Palembang, in Southern Sumatra; and the B. P. M. lines over approximately the same route from Djambi to Pladjoe, near Palembang, from Perlak to Pangkalan Brandan, in Northern Sumatra, and from the Louise field to Balki Papan, in Borneo. B. P. M. construction plans are said to include a new line from the Tjepoe Feld to Soerabaya, a refining base and shipping base on the north coast of Java.

The Maracaibo fields, insofar as they have been developed up to now, and excepting the Colon district which was opened by the completion of a 90-mile line by Royal Dutch-Shell last year, are all on or near the lake-shore and can be served by tankers plying between lake ports and deep water terminals on the islands of Curacao and Aruba and the Peninsula of Paraguana.

Colombian fields further illustrate the statement made above, in that all are located in close proximity to a navigable river. Notwithstanding this, however, a pipe line of the first importance was required to be constructed before these fields could be exploited on a commercial scale; and however many larger and longer lines may be built in future years, the Andian National's line from El Centro across jungle and swamp 336 miles to Cartagena, on the Caribbean coast, will live forever in the hearts of oil men as a milestone of our industry and a monument to the skill and courage of the men who built it.

Peruvian and Ecuadorian fields, insofar as they have been exploited, are so near the sea that the Pacific Ocean can be sighted from almost any derrick top. The Comodoro Rivadavia field of Argentina is also near the coast. The Plaza Huincul and Tartagal fields[1] are served only by loading lines and railway outlets, but one of the important developments

of the next decade may be the construction of a long line to open up the oil fields of Northern Argentina and Southern Bolivia. Standard Oil Companies of Bolivia and Argentine has been drilling for years and has discovered oil at several different points on its concession of 2,458,000 acres in Southern and Eastern Bolivia, as well as around Tartagal and Embarcacion in Northern Argentina[2]. These fields are 1200 to 2000 miles removed from Buenos Aires and the River Plate region, which afford their only market outlets. Oil could be moved in barges or tankers down the Parana River and its tributaries to the Rio d La Plata, but even this plan would require considerable pipe line construction.

Venezuela Lines Recent

Venezuela oil fields, it may be said, entered the pipe line phase only last year, with the completion of the Colon line from Rio Tarra to the lake-shore and of the Creole line from the Quirequire field, in Eastern Venezuela, to the San Juan River, which flows into the Gulf of Paria. There are, of course, extensive pipe lines along the shores of Maracaibo Lake; but these are really gathering lines whose function is the concentration of oil for shipment by shallow-draft tankers across the Maracaibo Bar to deepwater points on the Dutch islands and the Venezuelan sea coast. However, longer lines reaching into the interior regions will be necessary before the development of the country can be completed. One of the possibilities of the future, assuming the increase of Venezuelan production beyond the capacity of the Maracaibo bottle-neck, limiting the number of tankers which may gain the open sea at each high tide, is the construction of one or more pipe lines crossing the oil producing regions north and east of the Lake and terminating at deep water on the Paraguana Peninsula or elsewhere on the north coast.

Apparently, the most immediate of the several pipe line construction projects now hanging fire or awaiting further developments in South America is that which will be required to serve the Barco Concession if and when it is ratified by the Colombian Congress on behalf of the Compania Colombiana de Petroleos, controlled by the Gulf Oil Corporation of Pittsburgh. It is not known specifically, whether or not the provisional compromise agreement recently signed between the company the executive branch of the Colombian Government requires that the line be constructed across Colombian soil, but one of its clauses

[1]See map published in The Oil Weekly of December 13, 1929, page 75.
[2]See map published in The Oil Weekly of December 13, 1929, page 143.

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SEAMLESS
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blown 600 feet from
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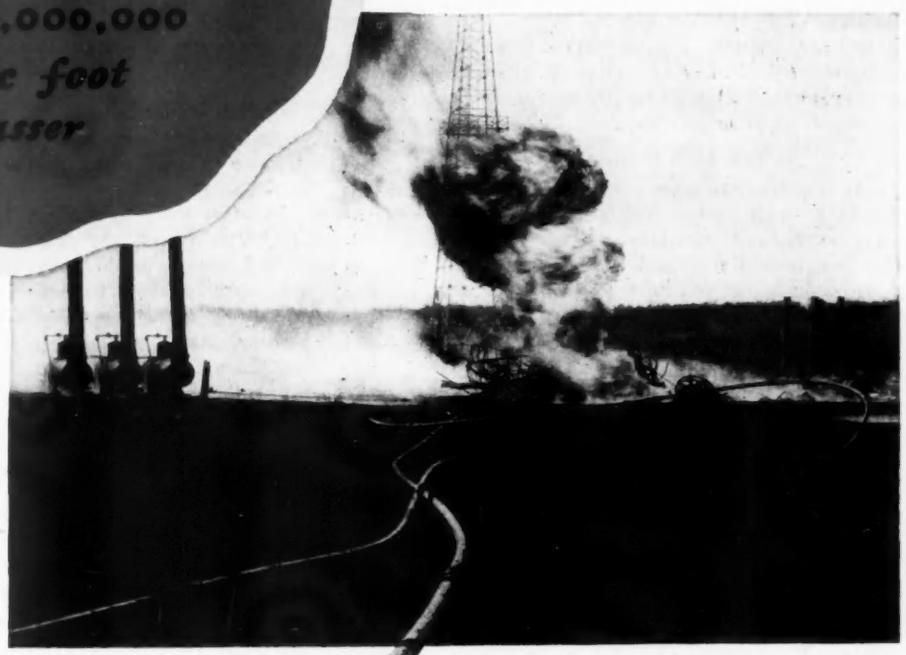
gasser



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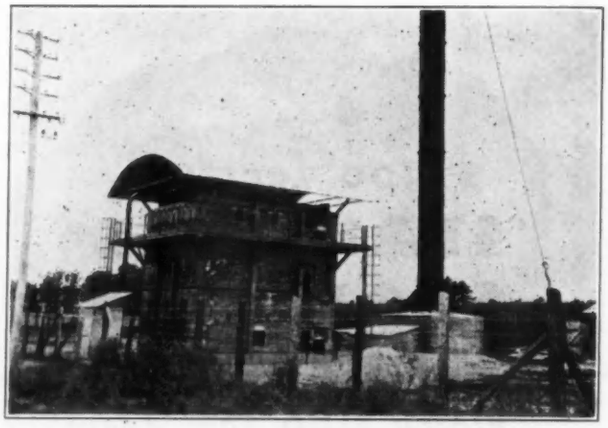
grants the concessionnaire permission to do so, which suggests the possibility of another line paralleling the Andian line along the Magdalena river. This, however, will require that oil be lifted to an altitude of 5080 feet to get it across Bolan's Pass, the lowest elevation of the Eastern Cordillera in that vicinity. Such a line would be about 400 miles in length; but a shorter line over an alternative route across Venezuelan soil would provide an outlet to Maracaibo Lake, where the Venezuela Gulf subsidiary already has a fleet of tankers in operation.

Union Oil Company concession,[3] in the Llanos country of southern Colombia, the Leonard Concession,[4] in the trans-Andian Oriente of Ecuador, and Standard Oil Company's concessions[5] along the Peruvian headwaters of the Amazon are properties whose exploitation will require pipe line projects of a magnitude greater than anything yet attempted anywhere in the world. The Orinoco and Amazon rivers afford alternate but circuitous and costly outlets; but at least one of these concessionnaires has considered the feasibility of a pipe line over the Andes at an elevation of approximately 10,000 feet, to have its terminus on the Pacific Coast. All of these concessions are said to embrace natural seepages of oil and gas indicative of the presence of oil in commercial quantities.

New Line in Roumania

Reports from Roumania are to the effect that, subject to parliamentary confirmation not yet granted, the government has authorized construction of an additional 10-inch pipe line from Baicoi and Ploesti, oil field centers, to Constanta, Roumanian sea port on the Black Sea, whence oil moves to European and Mediterranean markets. Both pipe lines and railways are operated as governmental monopolies in that country, with the natural result that construction has lagged far behind the demand for additional facilities for the transportation of flush oil found by deep drilling at Moreni and elsewhere. Not only have pipe line facilities been inadequate since the fruition of the deep drilling campaign, but the state railways also have lacked tank cars and motive power with which to move surplus oils to seaboard. Roumania is almost completely undeveloped, industrially; and refiners are said to have offered to give away fuel oil for which no sale could be found in the domestic market and for which no transportation could be found to move it to seaboard for export. Likewise, crude oil has virtually been unsaleable several times since the Roumanian pipe lines and railways became congested. The proposed new line, however, which will have a total length of approximately 188 miles, should relieve the situation to a considerable extent, as Roumanian producers, by reason of the geographical location and also because of the affiliation of some of them with certain European distributing agencies, have what might be termed an established right to a large share in certain Danubian and European markets.

[3]See The Oil Weekly of December 13, 1929, page 96.
[4]See The Oil Weekly of December 13, 1929, page 163.
[5]See The Oil Weekly of December 13, 1929, page 174.



Furnace for re-heating crude in transit through Steaua-Romana Company's pipe line in Roumania. Paraffin oil produced from deep sands in Roumania must be re-heated every 20 to 30 kilometers to prevent its congealing in the line during cold weather.

An offer made by *Societe Anonyme Roumaine Conducta* in collaboration with the National Supply Corporation, of the United States, for the construction of a line which will have a capacity of 17,000 barrels of gasoline per day had been approved by the *Regia Publica a Conductelor de Petrole ale Statului* (state pipe line agency), the Ministry of Industry, and the Council of Ministers and was before the Parliament for ratification when that body adjourned on April 1.

Pioneering in Oil Transport

The oil fields of Burma illustrate very clearly the proposition laid down at the beginning of this article. Excepting Indaw, a small field located 26 miles east of the Chindwin and not so many miles inland from the Irrawaddy, all of Burma's fields are located along the banks of the Irrawaddy River, which in the early days afforded the only means of travel from Rangoon to Mandalay and interior points.

This great river, by the way, probably was the scene of mankind's first attempt at the transportation of crude oil. In the records of the Anglo-Burmese War of 1825 mention is made of floating fire rafts employed by the Burmese in their attack on a British flotilla in Rangoon harbor. It is recorded that these rafts were "made of bamboos firmly wrought together, between every two or three of which lines of earthenware jars filled with petroleum and cotton were secured."

This oil, obviously, had been floated 275 miles down river from Yenangyaung by means of rafts of similar construction. Archives of Burmah Oil Company show that similar rafts were used by the company and its predecessors in the Burmese oil industry in the transportation of crude oil from the fields up river to the refinery at Rangoon during the period of 1871 to 1908, which latter year marked the completion of the 10-inch line whose route is shown on the accompanying map.

No general discussion of pipe lines would be complete without an admiring reference to the Anglo-Persian line from the Masjid-i-Suleiman and Haft Kel fields, in Southern Persia, to Abadan, a refining and shipping base on the Persian Gulf. The British organization which built this desert line has made many important contributions to industrial science and to the progress of the oil industry, of which the pioneering installation of rotary pumps of large capacity and the successful operation of a closed, vapor-

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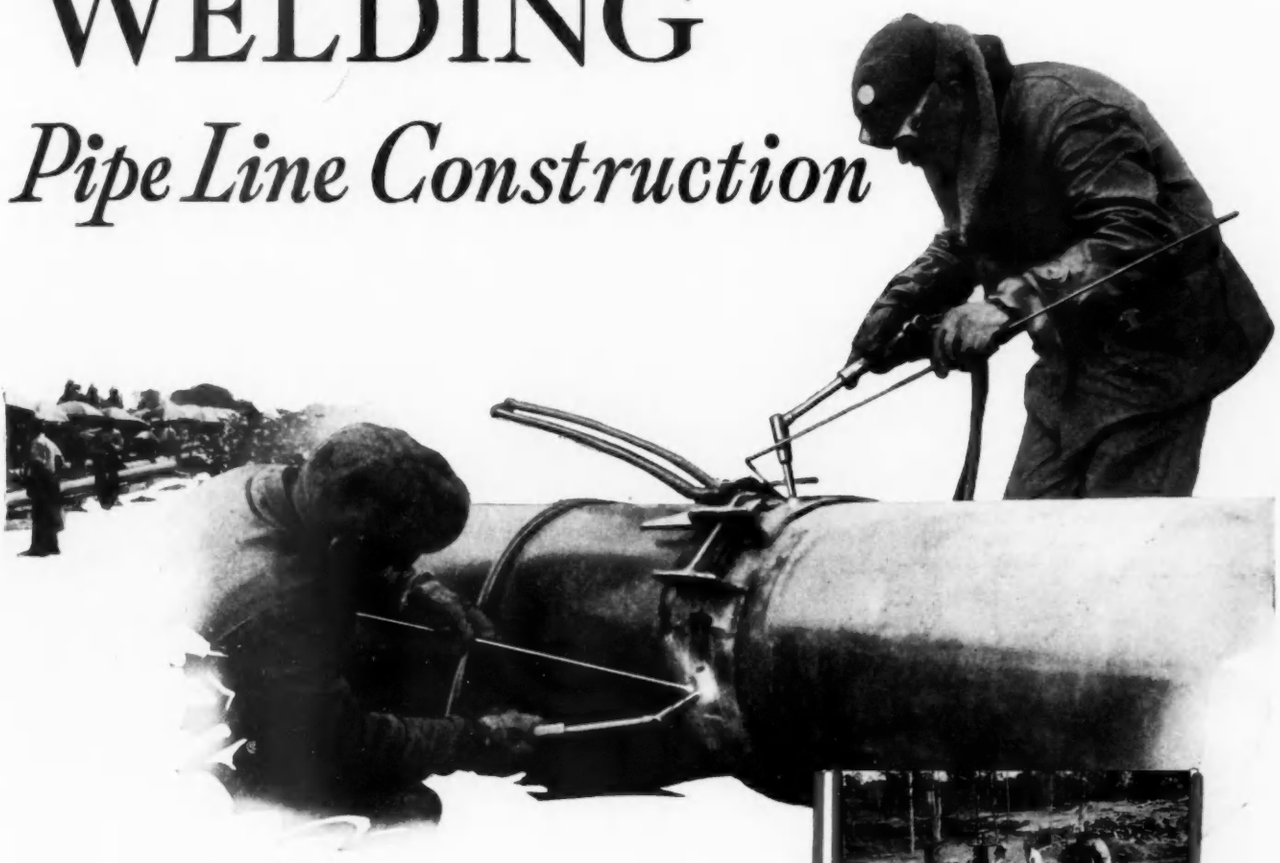
WELDING
Pipe Line Construction



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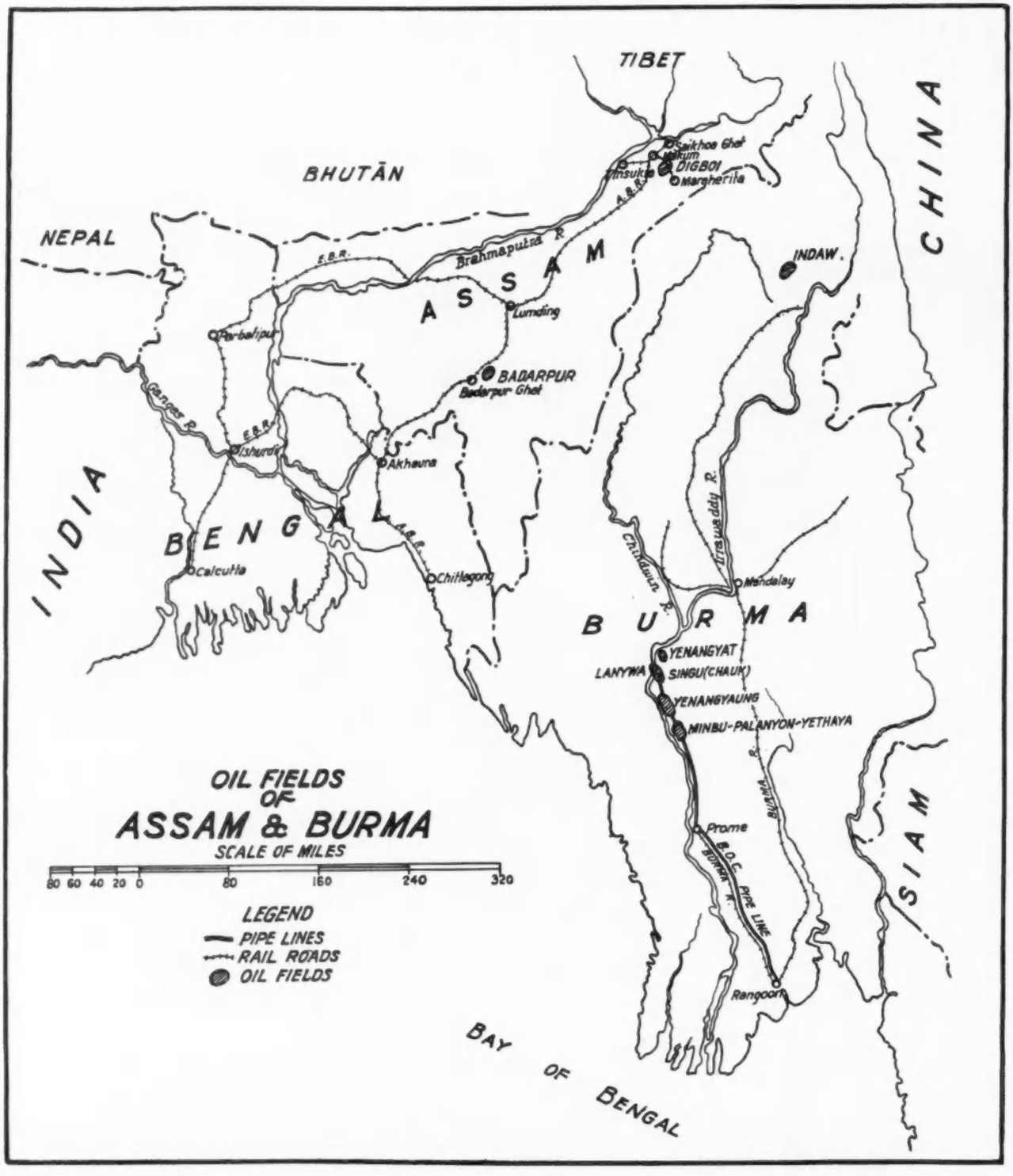
tight circuit from the well-head to the still are not the least important. Single rotary pumps having an overload capacity of 125,000 barrels per day—the largest in the world—are included in the project, the full capacity of the system as a whole being about 171,500 barrels per day.

The Anglo-Persian Oil Company line has figured in several of the many interesting experiments made in Persia, some of which have affected the trend of petroleum engineering throughout the world. Among these are the transportation of oil and gas through the same line at the same time, the latter product being separated out at the terminus and there used for refinery fuel. The line also figured in major experiments made in returning oil and gas residue to the natural underground reservoir, oil residuum being pumped back from the refinery to the field, 135 miles, where it is mixed with dry gas and returned to the oil-bearing limestone to be rehabilitated and revitalized in Nature's own laboratory. Of course, the pipe line system figured only temporarily in this experiment, the ultimate successful outcome of which may mean the construction of topping plants inland at the fields and the conversion of the

(*Continued on page 107*)



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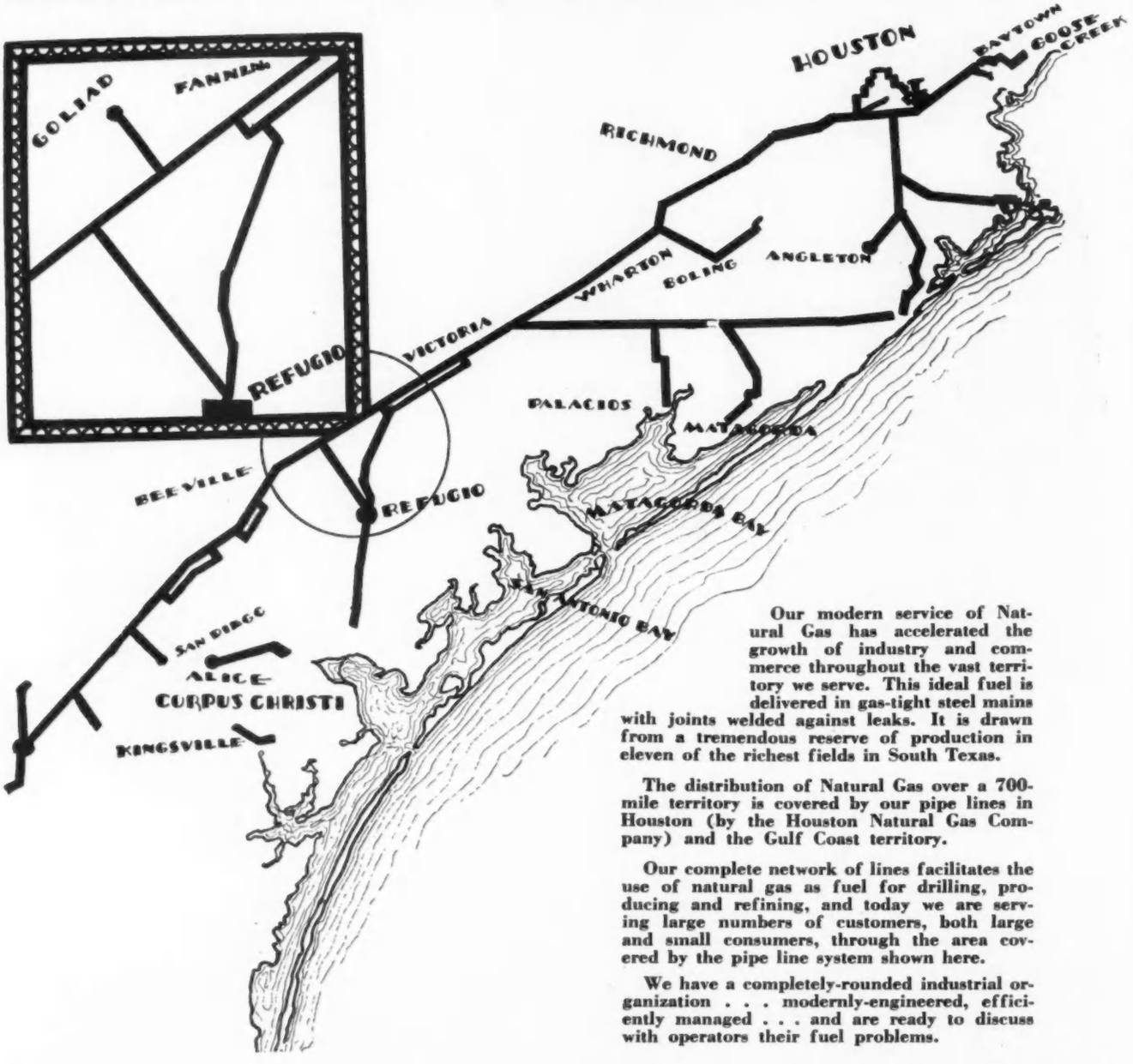

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Progress in
Arc Welded Construction of Oil Pipe Lines

By J. F. LINCOLN
President Lincoln Electric Company, Cleveland, Ohio

PROGRESS in pipe line construction made within the last year has included a number of significant and far reaching changes, not the least of which has been the introduction of shielded arc welding. With this new process welds are produced having a tensile strength of 60,000 to 75,000 pounds per square inch. These welds are as ductile as the pipe metal and offer even greater resistance to corrosion.

The exceptional physical qualities of shielded arc welds are obtained by protecting the molten metal both in the arc and in the weld, during the process of deposition, from the oxygen and nitrogen in the ambient atmosphere. It is commonly known by those familiar with arc welding that the molten weld metal as it is being deposited has a high affinity for oxygen and nitrogen. Since the arc stream in ordinary welding is maintained in an atmosphere composed chiefly of these elements, oxidation proceeds at a high rate during the passage of the weld metal from electrode to work. Thus oxides and nitrides which tend to impair the physical qualities of any metal, are formed in the weld.

With shielded arc welding an extruded type of heavily coated electrode, known to the trade as "Fleetweld," is used.

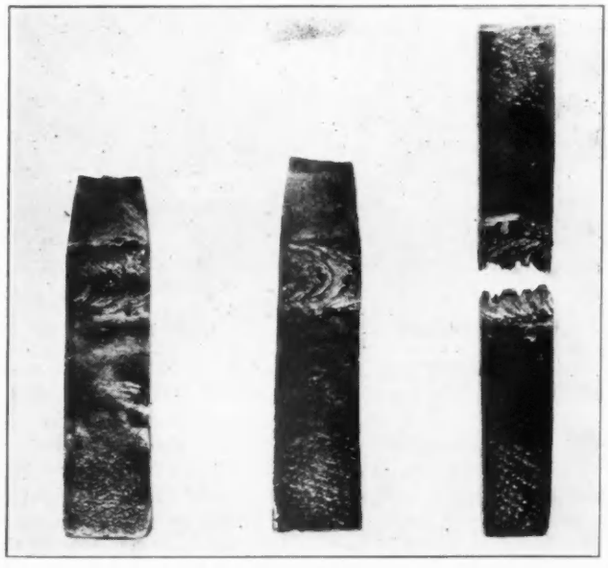

FIGURE 1

Four holes drilled through the weld metal were necessary to reduce the cross sectional area of the shielded arc weld in the lower bar sufficiently to cause failure in the weld. The pull was 75,000 pounds per square inch. The bars with one and three holes through the weld broke in the pipe metal.

The metal core of this electrode melts faster in the arc than the coating burns, and the coating forms in effect, a crucible in which the electrode metal is melted. This crucible shields the arc stream from the surrounding atmosphere for almost its entire length. The molten weld metal is further protected by quantities of carbon monoxide which are given off as the edge of the coating burns in the arc. This carbon monoxide being one of the greatest deoxidizers known combines with the oxygen of the atmosphere surrounding the arc, thus leaving no oxygen or nitrogen to combine with the molten weld metal in the process of deposition. Thus the weld metal is practically free of oxides and nitrides.

Physical Properties of Welded Joints

As we have seen above, welds produced by this new process of arc welding have a tensile strength of 60 to 75 thousand pounds per square inch, which is from 10 to 20 thousand pounds per square inch greater than that of mild rolled steel. In pipe line construction this means that the metal at the joint has a tensile strength greater than the metal in the walls of the pipe. Figure 1 shows graphical proof that this is true. This illustration shows results of tensile tests made on three samples cut from a joint made in pipe having a .20 per cent to .30 per cent carbon content. Holes of 3/32-inch diameter were drilled through the shielded arc weld metal before testing, and as may be seen in this illustration, the samples with one and three holes through the weld, broke in the plate. In order to determine the actual strength of the weld metal, the cross sectional area of the weld in the third sample was reduced below that of the pipe metal to insure failure in the weld. This sample broke in the weld at a pull of 75,000 pounds per square inch.

On one large pipe line now under construction the average tensile strength of more than 500 coupons cut from welded joints was 73,646 pounds per square inch. On another line the average strength of 62 coupons was 72,340 pounds per square inch.

Resistance to Corrosion

High resistance to corrosion is exceptionally important in pipe line construction. Present day pipe lines are expensive and are constantly working under extreme pressure so that any lost time for repairs means thousands of dollars in expenses. Even though welded pipe lines are wrapped or coated it has been found in the past that these elements give way to the chemical action in the ground. It has also been found that due to the oxides in it, the weld metal corroded more rapidly than the pipe metal. With the shielded arc welding process, however, this condition has

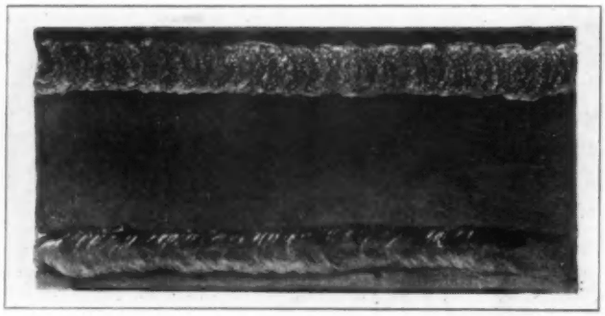

FIGURE 2

A comparative test of corrosion on sample welds. The weld above was made with the unshielded arc; the one below by the new welding process.

been reversed. Welds made with this new process are highly resistant to corrosion, as may be seen in Figure 2.

Figure 2 shows the results of a test made to compare the resistance to corrosion of a shielded arc weld with that of a weld made with the unshielded arc. The top weld in this illustration was made with an ordinary bare electrode; the lower weld was made by the shielded arc process. Both welds were deposited on one piece of metal which was then immersed for 72 hours in a 50 per cent solution of hydrochloric acid. Close inspection of the sample will reveal that the weld produced by the new process was not affected. The acid, however, has deeply etched the other weld and slightly etched the parent metal.

Effects of corrosion on pipe lines differ with the composition of the pipe metal and the texture of the soil through which the line is laid. The action set up by the chemical differences of the pipe and soil cause rust and corrosion to take place on the walls of the pipe. When this chemical action is slight the pipe will not be affected to any great extent; however, where there is a great deal of moisture corrosion generally takes place very rapidly. The presence of oxides in the metal of the pipe wall presents an ideal spot for chemical action to begin. In the joints corrosion is eliminated by the shielded arc which prevents oxidation in the weld metal.

Ductility

The ductility of welds made with this new welding process is shown in Figure 3. The sample shown in this illustration consists of two pieces of plate butt welded and bent with the weld as a pivot, to determine the elongation of the weld metal. In this particular case the elongation of the outside fibres of the weld metal was 43 per cent.

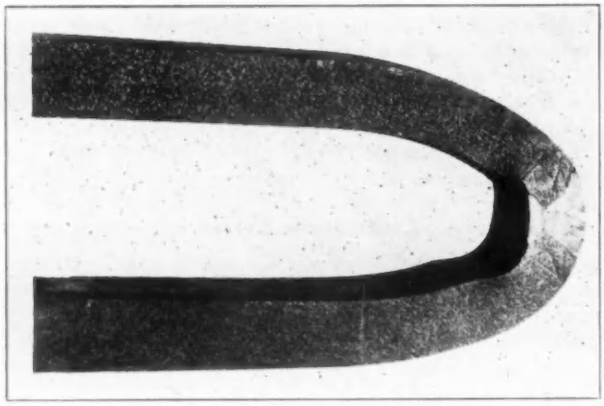

FIGURE 3

This bend test was made to show the ductility of welds made with the shielded arc. The elongation on the outside fibres of the weld was 43 per cent.

Welding Procedure

The methods of construction and the welding procedure in use with this new process of welding are practically the same as used previous to its adoption, except in a few cases where the superior qualities of these welds have permitted the adoption of more advantageous methods. One of these changes has been the adoption of a double bell and chill ring joint. This type of connection gives maximum strength and rigidity to each joint without obstructing the passage of the oil. The inside diameter of the joint is the same as that of the pipe walls. Figure 4 shows a cross-section of this type of joint.

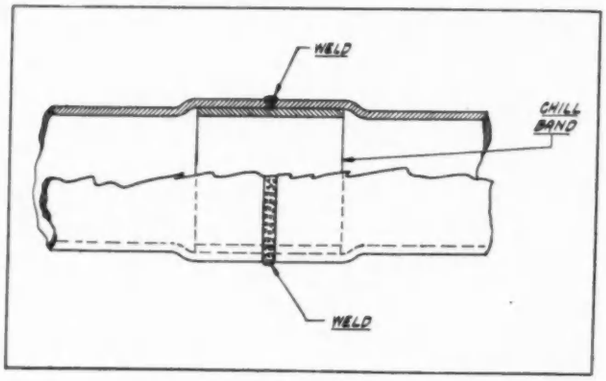

FIGURE 4

The pipe ends and chill band are fused together into one integral whole by this new welding process.

Tacking

As a result of the physical qualities of shielded arc welds, and the greater speed of welding it permits, it is now customary to line up several lengths of pipe on rollers, tack across the complete section, and turn the section for both the stringer and finishing bead. Figure 5 shows the component parts of a joint ready for lining up, and Figure 6 shows the joint ready for tacking.

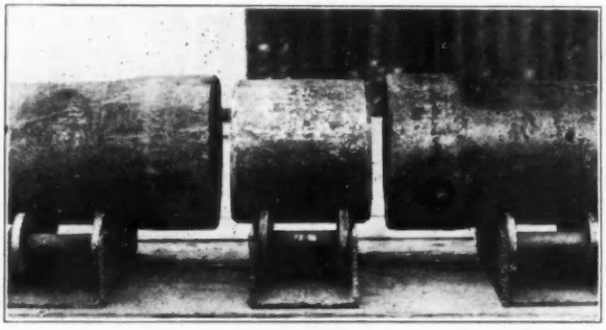

FIGURE 5

A double bell and chill bound joint ready for lining up

The number of tack welds applied at each joint depends on the size of the pipe. On larger sized pipe it is customary to use three tacks placed at approximately 120 degrees apart, but on pipe up to 12 inches in diameter two two-inch welds are sufficient. This tacking is done by one operator and one welding machine, which moves along the right of way behind the line-up gang. In lining up the pipe a space of approximately 3/32-inch is left between the ends of the joining pipe to allow the burning-in bead to penetrate into the chill ring. The tacking is done with either 3/16-inch or one-quarter-inch electrodes.

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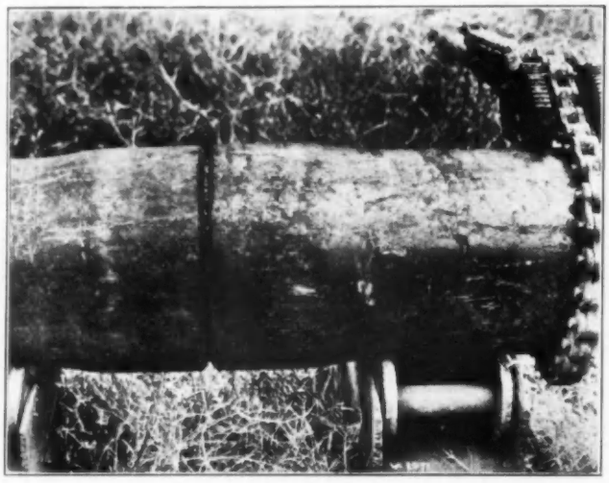


FIGURE 6
Showing the joint lined up ready to be tack welded.

move into position along the section and complete the joints. These gangs consist of one operator, one welding machine, and two helpers. The rolling welds are applied in two beads—the stringer bead and the finishing bead. Figure 7 shows a welded joint with the burning-in bead in place, and Figure 8 shows the completed joint. These illustrations also show the rollers and tongs for rolling the pipe while welding.

While both the stringer and finishing beads are being applied the pipe is turned continuously by one helper. The operator begins at one end and moves across the section applying the burning in bead. One helper follows him across the section cleaning the stringer bead in preparation for the finishing bead. The electrode is held at right angles to the pipe wall just off the top center on the welder's side, the pipe being rolled away from him. By means of prearranged signals the operator indicates to the helper to turn faster or slower, in order to maintain a speed, in turning, consistent with the speed of welding.

In applying the stringer bead it is general practice to bring the top of the bead a trifle below the outer surface of the pipe. This bead is thoroughly scaled while the next joint is welded. The finished bead generally extends approximately 1/16-inch above the outside surface of the pipe.

The following table shows the proper sizes of electrodes

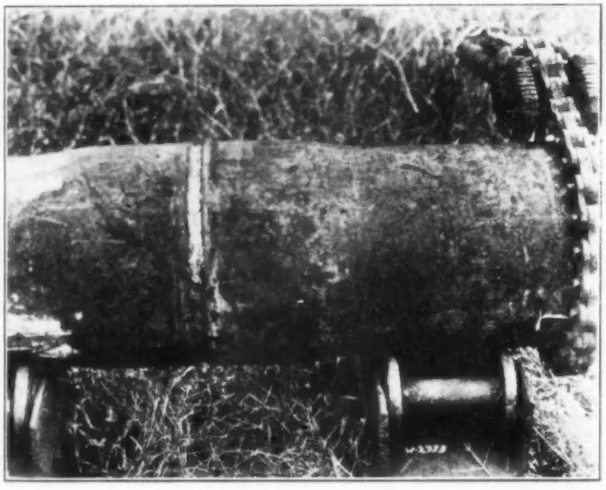


FIGURE 7
A welded joint with the burning in bead in place.

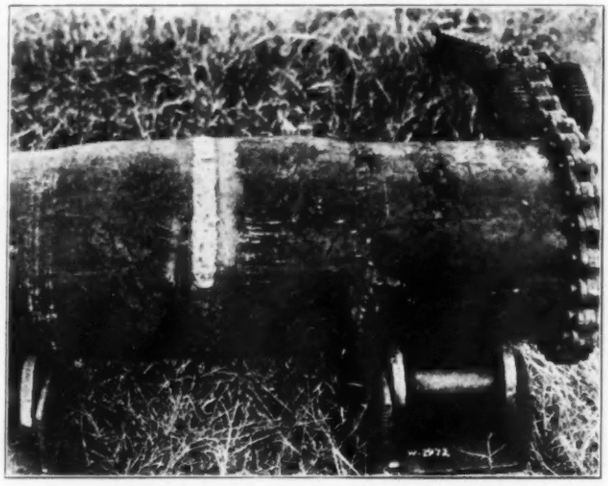


FIGURE 8
A complete shielded arc welded joint.

to be used in welding butt joints with the shielded arc, the pipe having a 30 degree bevel at the ends.

	Size of Electrode	
Dia.	Stringer Bead	Finish Bead
8"	3/16"	¼"
10"	¼"	5/16"
12"	¼"	5/16"
14"	¼"	5/16"
16"	¼"	5/16"
18"	¼"-5/16"	5/16"
20"	¼"-5/16"	5/16"
22"	5/16"	5/16"-⅜"
24"	5/16"	5/16"-⅜"

Tie-in Welds

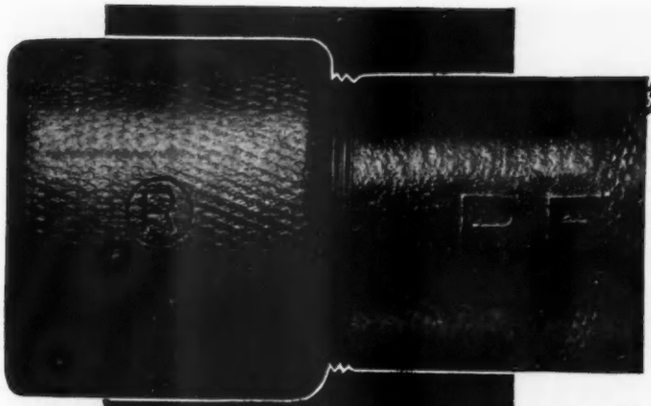
The sections of pipe as completed are joined into the line by tie in welds. These welds are generally made in three to five beads. the first bead is started at the top and extends down one side to the bottom center. The opposite side is welded in like manner. Each bead is thoroughly cleaned before applying the succeeding bead. The following table gives the approximate heats and sizes of electrodes to use on both firing line and bell hole welding.

Diameter Electrode inch	Roll Weld Amperes	Bell Hole Amperes
5/32	.....	120-150
3/16	180-225	140-170
¼	225-275	
5/16	275-400	
⅜	350-550	

Speed of Welding

By the use of the new process of arc welding the speed of welding is increased two to three times more than that obtainable with other processes. The accompanying chart, Figure 9, shows graphically the production of welds per operator per nine-hour day on various sizes of pipe. The speeds noted are based on the following conditions:

1. No undue loss of welding time by welders due to moving of welding machines or waits for pipe to be lined up.
2. Use of pipe of good weldability.
3. Use of double bell or chill ring type of joint, or equal.
4. Use of pipe in at least 30-foot lengths.



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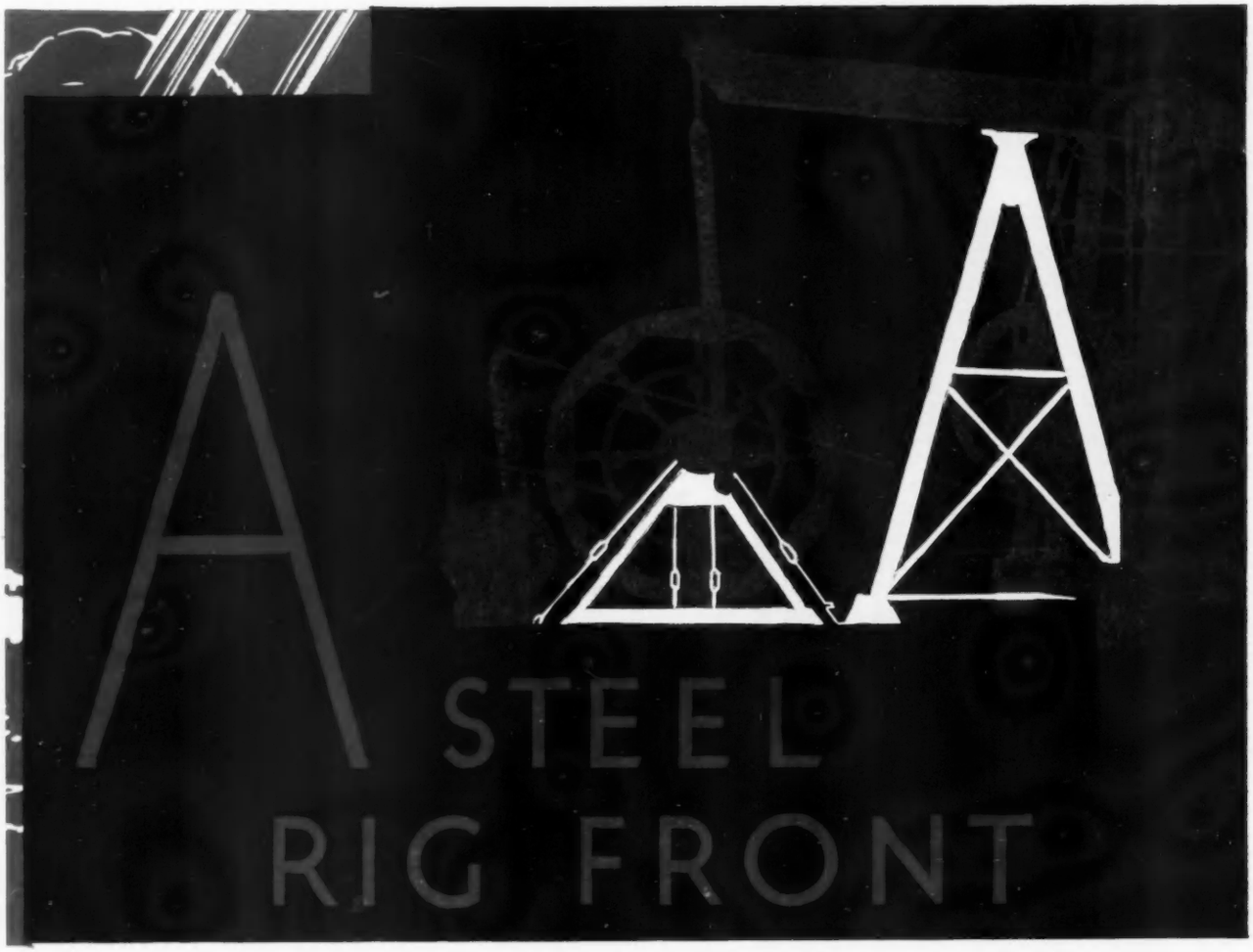
Atlanta, Baltimore, Boston, Buffalo, Pittsburgh, Cincinnati, New York, Detroit, Houston, St. Louis, San Francisco, Seattle, Chicago, Philadelphia, Tulsa, Los Angeles, Kansas City

READING PUDDLED IRON PIPE

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

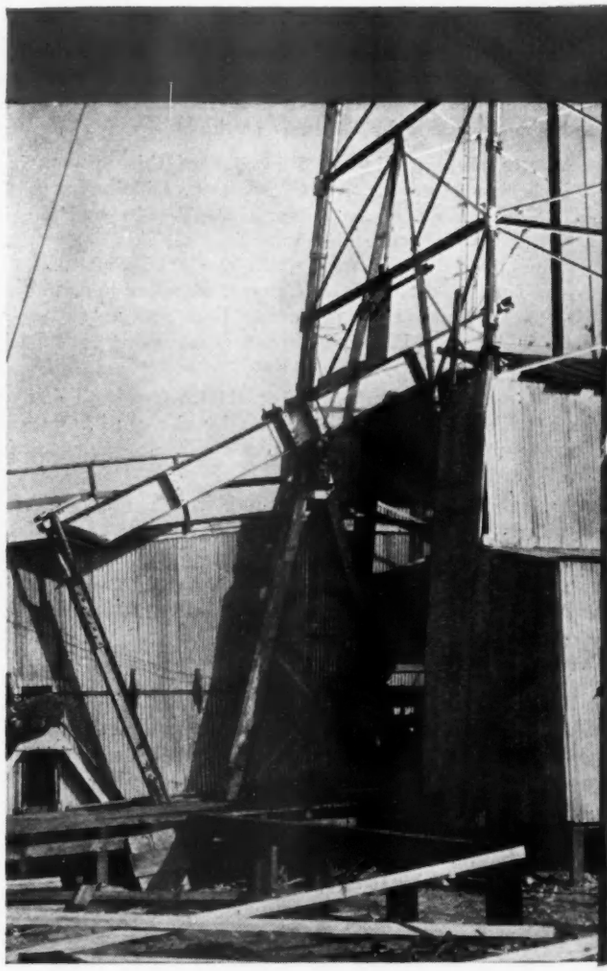


WITH STRENGTH AND .... ENDURANCE

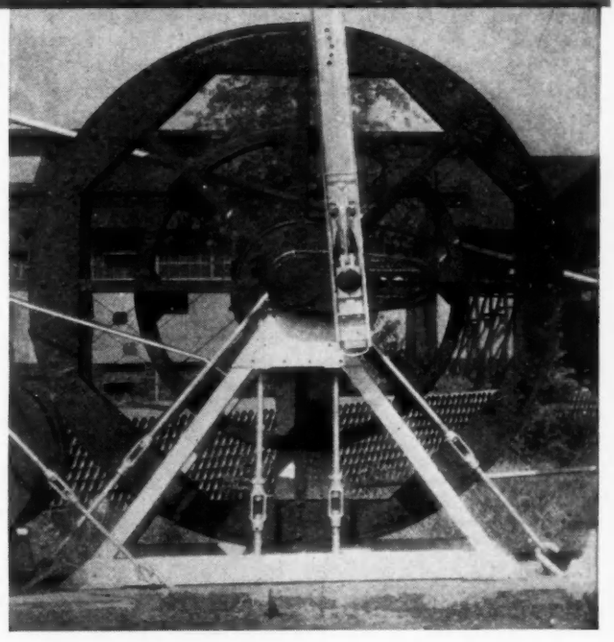
Moore Types 90 and 91 Steel Rig Fronts are built for the heaviest drilling and pumping service. The use of structural steel girder beams, careful bracing, heavy base plates and electric welding are but a few features of design and fabrication which account for the strength and rigidty of this equipment.

LEE C. MOORE & COMPANY, Inc.
Established 1907
Pittsburgh · Tulsa
New York Offices: Oilfield Equipment Co., 30 Church Street, New York, N. Y.
Dallas, Texas Wichita, Kan. Casper, Wyo. Shreveport, La. Houston, Tex.
Stocks in All Principal Fields

Moore STEEL



The samson post is composed of two interchangeable 14" structural steel girder beams, made in the two A. P. I. heights. Headache post is made of an I beam, with adjustable top end.



Jack posts have angle ties between the bottom ends of the "A" legs. Diagonal turnbuckle braces and long turnbuckle hold-down rods for front bearing, and short hold-down rods for rear bearing, are standard equipment. Diagonal turnbuckle braces for rear bearing can be furnished.

RIG FRONTS

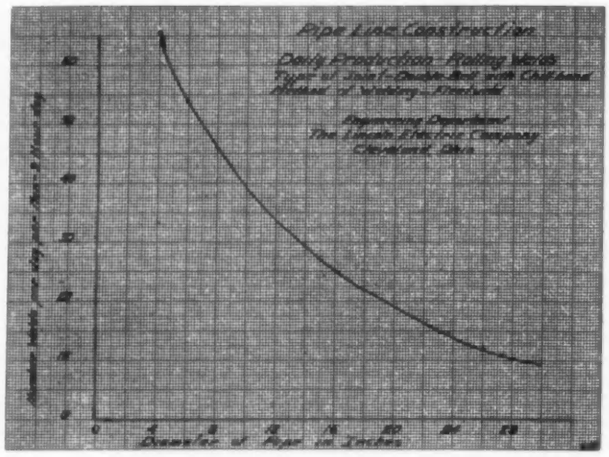


FIGURE 9

The number of welds per day increases proportionately to the size of the pipe. This chart shows the number of welds per man per nine-hour day on various sizes of pipe.

5. Maximum reinforcement of weld approximately 1/16-inch.
6. Pipe to be turned on rollers.
7. Cleaning of welds to be done by helpers.
8. All joints to be properly lined up and tack welded ahead of firing line crew.
9. Use of pipe having standard weld thickness.

Under average conditions the actual welding time per joint can be figured as approximately one minute per inch diameter of pipe.

Equipment

Due to the fact that the best results and greater speed are obtained with higher welding currents, gasoline engine driven welders of high capacity are now being generally used on pipe line work. Welders of 400 ampere capacity, N.E.M.A. rating, driven by six-cylinder engines are best suited to this work. These units may be equipped with wheels and wagon tongues or transported along the right-of-way on wagons. Economy of fuel consumption can be effected if the unit is equipped with an automatic idling device. This device reduces the speed of the engine to idling speed when the arc is not in use. Instantaneously on resumption of welding the device automatically accelerates the engine to proper speed.

Oil Carrying Pipe Lines Welded by New Process

Since the introduction of this new process of welded oil pipe line construction, a total of 1010 miles of pipe lines containing 106,885 joints have been fabricated or are now under construction by this new method.

Among the lines installed by use of this process is a 10-inch line extending from Perryman, Oklahoma, to the Gulf Refining Company refineries at Toledo, and Cincinnati, Ohio, and Pittsburgh, Pennsylvania. This line consists of a main line 732 miles long and an eight-inch branch line to Cincinnati, from Dublin, Indiana, 51 miles long. A total of 85,888 firing line joints on this line were fabricated by the shielded arc. Figure 10 shows work going forward on this new line.

A 207-mile, eight-inch line from Darst Creek oil fields to Sour Lake, constructed last year by the Gulf Pipe Line Company, contains approximately 10,560 arc welded firing line joints.

An eight-inch line extending south from Powderly, Texas, 14 miles has a total of 2058 arc welded joints made with the shielded arc.

This new process has also been used on a 57-mile line of eight-inch pipe extending from 18 miles north of Powderly, Texas, to Hugo, Oklahoma. There are 8379 firing line welds in this line.

Final Testing

As the lines or sections of lines are completed they are generally tested for tightness. As a rule these tests are made by air pressure. The air is kept in the line for a certain length of time, while gauges register the changes in pressure. Each joint is inspected for leaks while the pressure is maintained. Allowance is also made for variations in pressure caused by temperature changes.

The records available on the 1000 miles of oil line welded by the shielded arc process during the last year show the leaks to be quite negligible. On some of the smaller lines no leaks were discovered in several thousand joints. On larger lines the percentage was infinitesimal.

Summary

This new process of welding in oil pipe line construction, as described above, includes many advantages. These advantages include greater physical qualities, increased ductility and resistance to corrosion in the welded joints, greater construction speed, reduced maintenance and repairs, increased life and more economical construction.

FIGURE 10

Showing work going forward on a 10-inch line for Gulf Pipe Line Company. This also shows a method of mounting the welder very often used.

BACKGROUND

When The Exchange National Bank of Tulsa came into existence the oil industry was struggling with difficulties now forgotten. That was the day of the lost hole, inadequate tools, impassable roads, the team and wagon . . . and the day of difficult financing.

Time has pushed these obstacles into the dimness of a colorful background . . . a background that tried the fibre of men and institutions, and a background of which The Exchange National was distinctly a part.

The Exchange National Bank of Tulsa takes pride in the fact that it assumed, at a time that required both foresight and courage, the responsibilities of Credit Sentry of The Oil Fields; it has always shared the industry's problems, has grown up with the industry, and has emerged from that background to gain international recognition as The Oil Bank of America.

THE EXCHANGE NATIONAL BANK OF TULSA

The LARGEST HIGH PRESSURE GREAT LAKES PIPE LINE CO.

PHOTOGRAPH ABOVE ILLUSTRATES THE OPENING OF THE GREAT LAKES PIPE LINE SECTION BETWEEN PONCA CITY AND BARNSDALL, OKLAHOMA, AND KANSAS CITY ON JANUARY 27TH

Taubman

BRANCHES

OKLAHOMA
OKLAHOMA CITY
SEMINOLE
KONAWA

TEXAS
KILGORE
LONGVIEW
BORGER
WINK

GASOLINE PIPE LINE *in the World* *chooses* CHAPMAN VALVES *for*

the entire project

FOR a high-pressure gasoline line, precision-made valves of absolute tightness are required. No chances can be taken with an inferior or unproven product. That's why Chapman Valves were chosen for the main line, pump stations and manifolds on the recently completed Great Lakes Line, the longest high pressure gasoline line in the world. Made of electric chrome tungsten steel and furnished for temperatures up to 1200 deg. F. and pressures to 1350 lbs., Chapman Valves are consistently specified for the industry's important projects.

Chapman Valves are distributed in the Mid-Continent and Gulf Coast territories by Taubman Supply Corp. serving The Chapman Valve Manufacturing Co., as factory representative. Chapman's problems of distribution being identical with all manufacturers marketing a single product, it was found expedient to depend upon a well-established sales organization thoroughly familiar with conditions in each field and one offering a broad outlet through strategically located stores.

The largest and most complete valve stocks ever carried in the Gulf Coast and Mid-Continent districts are available at Taubman's Houston and Tulsa stores, while regular stocks may be had at all times from the other ten Taubman branches.

In addition to Chapman Valves, Taubman Supply Corp., is factory representative for Republic Electric Weld Pipe, Pittsburgh Seamless products, Stockham Fittings and Edward Valves.

Taubman's Engineering Department, with a Chapman factory engineer in charge, is at your disposal for consultation relating to any pipe line, station or plant construction problem. All inquiries are handled promptly and held confidential.

As an added service Taubman maintains A. P. I. and standard pipe threading machines giving 24-hour service in all main branches.

Taubman Quality Taubman Service Taubman Quality Taubman Service

TAUBMAN SUPPLY CORPORATION

Supply Corp.

MID-CO BLDG., TULSA, OKLAHOMA

NEW MEXICO
HOBBS

KANSAS
WICHITA
McPHERSON
HUGOTON

REPUBLIC
ELECTRIC WELD
PIPE

Need Shown for Universal Oil Measuring Standard

By ROY E. LEIGH
Associate Editor

THE OIL WEEKLY offers below a table of comparison between A. P. I. and specific gravities and British long tons, metric tons, cubic meters and barrels. The post-war adoption by Russia and other oil producing countries of the metric system has greatly reduced the number of different methods employed in the measurement of oil throughout the world. Formerly, oil was measured in "poods" and various other units; but nowadays we find it measured only in barrels in the United States and certain other countries whose oil industries have felt the American influence, in long tons (2240 pounds) in the British Empire and in certain countries where oil is produced by British enterprise, and in metric tons (1000 kilograms or 2,204.-622341 pounds) and cubic meters (264.4 U. S. gallons) in France, Mexico, Argentina and other countries where the metric system has been adopted. It is true that oil is still measured in "wagons" (tank cars) and "cisterns" (tanks) in Roumania and Poland, but one needs only to remember that a "wagon" or "cistern" of oil is commonly recognized as containing 10 metric tons. A few British producers make it their policy to measure production in Imperial gallons, equivalent to 1.201 U. S. gallons; but, generally, great progress has been made toward the standardization of oil measurements during recent years.

DR. O. STUTZER, of Freiburg Mining Academy in Saxony, has recently proposed that the International Geological Congress (Washington, 1932) or the International Drilling Congress (Berlin, 1933) should formulate proposals for the adoption of a universal standard of calculating quantities of oil. He suggests that all countries should standardize on the volumetric method, the cubic meter being the most suitable unit, in his opinion.

Dr. Max Morgenstern, of Vienna, writing in "Petroleum," (Germany) maintains that weight, and not volume, is the only basis for exact calculation. He points out that if the volume of any quantity of oil is to be stated unambiguously the gravity or temperature at the time of measurement must also be given, whereas measurement by weight is entirely independent of changes in temperature and of fluctuations in gravity caused by evaporation or polymerization.

The Institution of Petroleum Technologists, of London, in co-operation with the American Society for Testing Materials, is also engaged on a program of international standardization of testing methods; and, so much having been accomplished in the direction of international standardization during recent years, it is possible that a standard method for grading and measuring oil may result from the exchange of ideas now going on between European and American authorities.

Within the United States, a great service was done by the American Petroleum Institute, the Bureau of Standards, and the Bureau of Mines by their collaboration in the revision of the Baume gravity scales in 1924. Their revised formula for the conversion of specific gravities to A. P. I. gravities (see below) has been accepted and adopted throughout the American oil industry and in many foreign countries; and nowadays one hears no more of the confusion which formerly attended the use of conflicting formulae and different, so-called Baume scales. The old Baume scale[1], thus rendered obsolete, has fallen into disuse; and one seldom hears the word Baume unless loosely and incorrectly applied to the revised A. P. I. scale.

Now that the numbers of gravity scales and units of measurement have thus been reduced, we think it timely to offer a table showing the relationship between those still in use. Of course, it would be desirable if the entire oil industry of the world could be persuaded to adopt common standards of measurement, but we despair of the complete adoption of the metric system by Americans and it probably is hopeless to expect European oil operators to adopt our volume and gravity measurements, except in special cases. Britishers can never be made to understand why we prefer to measure oil by volume, and Americans will never admit the sense of measuring liquids by weight.

Rules of Thumb

We have yet to see an oil man, American or European, who is equally familiar with the A. P. I. and specific gravity scales or with the units of measurement by weight and volume. However, there are many rules of thumb by which conversion may be approximated. For example, it is figured that a ton of oil is roughly equivalent to 7 or 7½ barrels and that a "wagon" or "tank" of oil approximates 70 to 75 barrels. Actually, however, the volume occupied by a given weight of oil changes with every fractional variation in gravity. It takes only seven barrels to make a ton of oil of 23° A. P. I. gravity, whereas a ton of 45° oil equals eight barrels. Imperial gallons bear approximately the same relation to U. S. gallons as six does to five; or an Imperial gallon is about 20 per cent larger than an American. It is generally remembered that the high numbers in the specific gravity scale are equivalent to the low numbers in the A. P. I. scale; but we have yet to find any one who can make conversion from one to the other without resorting to references or to calculation.

The recognized revised formula for the determination of A. P. I. gravity is as follows:

$$\text{Degrees A. P. I.} \frac{141.5}{\text{sp. gr. } 60°/60°\text{F.}} - 131.5$$

The universal conversion table offered below is based on this formula and on fundamental data found in "National Standard Petroleum Oil Tables," prepared by the United States Bureau of Standards, approved by that bureau and by the American Petroleum Institute and the United States Bureau of Mines, and published by the Government Printing Office at Washington as Circular No. 154 of the Bureau

[1]This refers to the scale based on the formula

$$\text{Degrees Baume'} \frac{140}{\text{sp. gr. } 60°/60°\text{ F.}} - 130$$

Universal Oil Conversion Tables

Gravity — Weight — Volume

Degrees A.P.I.	Specific Gravity	Pounds Per Gallon	Gallons Per Pound	Barrels Per Long Ton	Barrels Per Metric Ton	Cubic Meters Per Long Ton	Cubic Meters Per Metric Ton
10.0	1.0000	8.328	0.1201	6.4041	6.3030	1.01729	1.00123
10.5	0.9965	8.299	0.1205	6.4265	6.3250	1.02085	1.00472
11.0	0.9930	8.270	0.1209	6.4490	6.3472	1.02443	1.00825
11.5	0 9895	8.241	0.1213	6.4717	6.3695	1.02803	1.01180
12.0	0.9861	8.212	0.1218	6.4946	6.3920	1.03166	1.01537
12.5	0.9826	8.183	0.1222	6.5176	6.4146	1.03532	1.01897
13.0	0.9792	8.155	0.1226	6.5400	6.4367	1.03887	1.02246
13.5	0.9759	8.127	0.1230	6.5625	6.4588	1.04245	1.02599
14.0	0.9725	8.099	0.1235	6.5852	6.4812	1.04606	1.02954
14.5	0.9692	8.071	0.1239	6.6080	6.5037	1.04969	1.03311
15.0	0 9659	8.044	0.1243	6.6302	6.5255	1.05321	1.03657
15.5	0.9626	8.016	0.1248	6.6534	6.5483	1.05689	1.04020
6.0	0.9593	7.989	0.1252	6.6758	6.5704	1.06046	1.04371
16.5	0.9561	7.962	0.1256	6.6985	6.5927	1.06406	1.04725
17.0	0.9529	7.935	0.1260	6.7213	6.6151	1.06768	1.05081
17.5	0.9497	7.909	0.1264	6.7434	6.6369	1.07119	1.05427
18.0	0.9465	7.882	0.1269	6.7665	6.6596	1.07486	1.05788
18.5	0.9433	7.856	0.1273	6.7889	6.6816	1.07841	1.06138
19.0	0.9402	7.830	0.1277	6.8114	6.7038	1.08199	1.06490
19.5	0.9371	7.804	0.1281	6.8341	6.7262	1.08560	1.06845
20.0	0.9340	7.778	0.1286	6.8569	6.7487	1.08923	1.07202
20.5	0.9309	7.752	0.1290	6.8799	6.7712	1.09288	1.07562
21.0	0.9279	7.727	0.1294	6.9022	6.7932	1.09642	1.07910
21.5	0.9248	7.701	0.1299	6.9255	6.8161	1.10012	1.08274
22.0	0.9218	7.676	0.1303	6.9481	6.8383	1.10370	1.08627
22.5	0.9188	7.651	0.1307	6.9708	6.8607	1.10731	1.08982
23.0	0.9159	7.627	0.1311	6.9927	6.8823	1.11079	1.09325
23.5	0.9129	7.602	0.1315	7.0157	6.9048	1.11445	1.09684
24.0	0.9100	7.578	0.1320	7.0379	6.9268	1.11797	1.10032
24.5	0.9071	7.554	0.1324	7.0603	6.9488	1.12153	1.10381
25.0	0.9042	7.529	0.1328	7.0837	6.9718	1.12525	1.10748
25.5	0.9013	7.505	0.1332	7.1064	6.9941	1.12885	1.11102
26.0	0.8984	7.481	0.1337	7.1292	7.0166	1.13247	1.11458
26.5	0.8956	7.458	0.1341	7.1512	7.0382	1.13596	1.11802
27.0	0.8927	7.434	0.1345	7.1742	7.0609	1.13963	1.12163
27.5	0.8899	7.410	0.1350	7.1975	7.0838	1.14332	1.12526
28.0	0.8871	7.387	0.1354	7.2199	7.1059	1.14688	1.12877
28.5	0.8844	7.364	0.1358	7.2424	7.1281	1.15046	1.13229
29.0	0.8816	7.341	0.1362	7.2651	7.1504	1.15407	1.13584
29.5	0.8789	7.318	0.1366	7.2880	7.1729	1.15770	1.13941
30.0	0.8762	7.296	0.1371	7.3099	7.1945	1.16119	1.14285
30.5	0.8735	7.273	0.1375	7.3331	7.2172	1.16486	1.14646
31.0	0.8708	7.251	0.1379	7.3553	7.2391	1.16839	1.14994
31.5	0.8681	7.228	0.1384	7.3787	7.2622	1.17211	1.15360
32.0	0.8654	7.206	0.1388	7.4012	7.2843	1.17569	1.15712
32.5	0.8628	7.184	0.1392	7.4239	7.3067	1.17929	1.16066
33.0	0.8602	7.163	0.1396	7.4457	7.3281	1.18275	1.16407
33.5	0.8576	7.141	0.1400	7.4686	7.3507	1.18639	1.16765
34.0	0.8550	7.119	0.1405	7.4917	7.3734	1.19006	1.17126
34.5	0.8524	7.098	0.1409	7.5139	7.3952	1.19359	1.17473
35.0	0.8498	7.076	0.1413	7.5372	7.4182	1.19729	1.17838
35.5	0.8473	7.055	0.1417	7.5597	7.4403	1.20085	1.18189
36.0	0.8448	7.034	0.1422	7.5822	7.4625	1.20444	1.18541
36.5	0.8423	7.013	0.1426	7.6049	7.4848	1.20804	1.18896
37.0	0.8398	6.993	0.1430	7.6266	7.5062	1.21150	1.19237
37.5	0.8373	6.972	0.1434	7.6496	7.5288	1.21515	1.19596
38.0	0 8348	6.951	0.1439	7.6728	7.5516	1.21882	1.19957
38.5	0.8324	6.930	0.1443	7.6960	7.5745	1.22251	1.20320
39.0	0.8299	6.910	0.1447	7.7183	7.5964	1.22605	1.20669
39.5	0.8275	6.890	0.1451	7.7407	7.6184	1.22961	1.21019
40.0	0.8251	6.870	0.1456	7.7632	7.6406	1.23319	1.21371
40.5	0.8227	6.850	0.1460	7.7859	7.6629	1.23679	1.21726
41.0	0.8203	6.830	0.1464	7.8087	7.6854	1.24041	1.22082
41.5	0.8179	6.810	0.1468	7.8316	7.7079	1.24405	1.22441
42.0	0.8155	6.790	0.1473	7.8547	7.7306	1.24772	1.22801
42.5	0.8132	6.771	0.1477	7.8767	7.7523	1.25122	1.23146
43.0	0.8109	6.752	0.1481	7.8989	7.7741	1.25474	1.23492
43.5	0.8086	6 732	0.1485	7.9224	7.7972	1.25847	1.23859
44.0	0.8063	6.713	0.1490	7.9448	7.8193	1.26203	1.24210
44.5	0.8040	6.694	0.1494	7.9673	7.8415	1.26561	1.24562
45.0	0.8017	6.675	0.1498	7.9900	7.8638	1.26921	1.24917
45.5	0.7994	6.656	0.1502	8.0128	7.8863	1.27284	1.25274
46.0	0.7972	6.637	0.1507	8.0358	7.9088	1.27648	1.25632
46.5	0.7949	6.618	0.1511	8.0588	7.9316	1.28015	1.25993
47.0	0.7927	6.600	0.1515	8.0808	7.9532	1.28364	1.26336
47.5	0.7905	6.582	0.1519	8.1029	7.9749	1.28715	1.26682
48.0	0.7883	6.563	0.1524	8.1264	7.9980	1.29087	1.27049
48.5	0.7861	6.545	0.1528	8.1487	8.0200	1.29443	1.27398
49.0	0.7839	6.526	0.1532	8.1724	8.0434	1.29819	1.27769
49.5	0.7818	6.509	0.1536	8.1938	8.0644	1.30158	1.28103
50.0	0.7796	6.490	0.1541	8.2178	8.0880	1.30539	1.28478
50.5	0.7775	6.473	0.1545	8.2394	8.1092	1.30882	1.28815
51.0	0.7753	6.455	0.1549	8.2623	8.1318	1.31247	1.29174
51.5	0.7732	6.437	0.1554	8.2854	8.1546	1.31614	1.29536
52.0	0.7711	6.420	0.1558	8.3074	8.1762	1.31963	1.29879
52.5	0.7690	6.402	0.1562	8.3307	8.1992	1.32334	1.30244
53.0	0.7669	6.385	0.1566	8.3529	8.2210	1.32686	1.30591
53.5	0.7649	6.368	0.1570	8.3752	8.2429	1.33040	1.30939
54.0	0.7628	6.350	0.1575	8.3990	8.2663	1.33418	1.31310
54.5	0.7608	6.334	0.1579	8.4202	8.2872	1.33755	1.31642
55.0	0.7587	6.316	0.1583	8.4442	8.3108	1.34136	1.32017
55.5	0.7567	6.300	0.1587	8.4656	8.3319	1.34476	1.32353
56.0	0.7547	6.283	0.1592	8.4885	8.3544	1.34840	1.32711
56.5	0.7527	6.266	0.1596	8.5115	8.3771	1.35206	1.33071
57.0	0.7507	6.249	0.1600	8.5347	8.3999	1.35574	1.33433
57.5	0.7487	6.233	0.1604	8.5566	8.4215	1.35922	1.33775
58.0	0.7467	6.216	0.1609	8.5800	8.4445	1.36294	1.34141
58.5	0.7447	6.199	0.1613	8.6035	8.4677	1.36667	1.34509
59.0	0.7428	6.184	0.1617	8.6244	8.4882	1.36999	1.34835
59.5	0.7408	6.167	0.1622	8.6482	8.5116	1.37377	1.35207
60.0	0.7389	6.151	0.1626	8.6707	8.5338	1.37734	1.35559
60.5	0.7370	6.135	0.1630	8.6933	8.5560	1.38093	1.35912
61.0	0.7351	6.119	0.1634	8.7160	8.5784	1.38454	1.36268
61.5	0.7332	6.103	0.1639	8.7389	8.6009	1.38817	1.36625
62.0	0.7313	6.087	0.1643	8.7618	8.6235	1.39182	1.36984
62.5	0.7294	6.072	0.1647	8.7835	8.6448	1.39526	1.37322
63.0	0.7275	6.056	0.1651	8.8067	8.6676	1.39895	1.37685
63.5	0.7256	6.040	0.1656	8.8300	8.6906	1.40265	1.38050
64.0	0.7238	6.025	0.1660	8.8520	8.7122	1.40614	1.38394
64.5	0 7219	6.010	0.1664	8.8741	8.7339	1.40965	1 38739
65.0	0.7201	5.994	0.1668	8.8978	8.7573	1.41342	1 39109
65.5	0.7183	5.979	0.1673	8.9201	8.7792	1.41696	1.39458
66.0	0.7165	5.964	0.1677	8.9425	8.8013	1.42053	1.39809
66.5	0.7146	5.949	0 1681	8.9651	8.8235	1.42411	1.40162
67.0	0.7128	5.934	0.1685	8.9878	8.8458	1.42771	1.40516
67.5	0.7111	5.919	0.1689	9.0105	8.8682	1.43132	1.40872
68.0	0.7093	5.904	0.1694	9.0334	8.8908	1.43496	1.41230
68.5	0.7075	5.889	0.1698	9.0564	8.9134	1.43861	1.41590
69.0	0.7057	5.874	0.1702	9.0796	8.9362	1.44229	1.41951
69.5	0.7040	5.860	0.1706	9.1013	8.9575	1.44574	1.42290
70.0	0.7022	5.845	0.1711	9.1246	8.9805	1.44945	1.42655
70.5	0.7005	5.831	0.1715	9.1465	9.0021	1.45293	1.42998
71.0	0.6988	5.817	0.1719	9.1685	9.0237	1.45642	1.43342
71.5	0 6970	5.802	0.1724	9.1922	9.0471	1.46019	1.43713
72.0	0.6953	5.788	0.1728	9.2145	9.0689	1.46372	1.44060
72.5	0.6936	5.773	0.1732	9.2384	9.0925	1.46752	1.44435
73.0	0.6919	5.759	0.1736	9.2609	9 1146	1.47109	1.44786
73.5	0.6902	5.745	0.1741	9.2834	9.1368	1.47468	1.45139
74.0	0.6886	5.731	0.1745	9.3061	9.1591	1.47828	1.45493
74.5	0 6869	5.718	0.1749	9.3273	9.1800	1.48164	1.45824
75.0	0.6852	5.703	0.1753	9.3518	9.2041	1.48554	1.46207
75.5	0.6836	5.690	0.1757	9.3732	9.2251	1.48893	1.46541
76.0	0.6819	5 676	0.1762	9.3963	9.2479	1 49260	1.46903
76.5	0.6803	5.662	0.1766	9.4195	9.2708	1.49629	1.47266
77.0	0.6787	5.649	0.1770	9.4412	9.2921	1.49974	1.47605
77.5	0.6770	5.635	0.1775	9.4647	9.3152	1.50346	1.47972
78 0	0.6754	5.622	0.1779	9.4865	9.3367	1.50694	1.48314
78.5	0.6738	5 608	0.1783	9.5102	9.3600	1.51070	1.48684
79.0	0.6722	5.595	0.1787	9.5323	9.3818	1.51421	1.49030
79.5	0.6706	5.582	0.1791	9.5545	9.4036	1.51774	1.49377
80.0	0.6690	5.568	0.1796	9.5785	9.4273	1.52155	1.49752
80.5	0.6675	5.556	0.1800	9.5992	9.4476	1.52484	1.50076
81.0	0.6659	5.542	0.1804	9.6235	9.4715	1.52869	1.50455
81.5	0.6643	5.529	0.1809	9.6461	9.4938	1.53229	1.50809
82.0	0.6628	5.516	0.1813	9.6688	9.5161	1.53590	1.51164
82.5	0.6612	5.503	0.1817	9.6917	9.5386	1.53953	1.51521
83.0	0.6597	5.491	0.1821	9.7129	9.5595	1.54289	1.51852
83.5	0.6581	5 477	0.1826	9.7377	9.5839	1.54683	1.52240
84.0	0.6566	5.465	0.1830	9.7591	9.6049	1.55023	1.52575
84.5	0.6551	5.453	0.1834	9.7805	9.6261	1.55364	1.52910
85.0	0.6536	5.440	0.1838	9.8039	9.6491	1.55736	1.53276
85.5	0.6521	5.427	0 1843	9 8274	9 6722	1.56109	1.53643
86.0	0.6506	5.415	0.1847	9.8492	9.6936	1.56455	1.53984
86.5	0.6491	5.402	0.1851	9.8729	9.7170	1 56831	1.54354
87.0	0.6476	5.390	0 1855	9.8949	9.7386	1.57180	1.54698
87.5	0.6461	5.377	0.1860	9 9188	9.7621	1.57560	1.55072
88.0	0.6446	5.365	0.1864	9.9410	9.7840	1.57913	1.55419
88.5	0.6432	5.353	0.1868	9.9633	9.8059	1.58267	1.55767
89.0	0.6417	5.341	0.1872	9.9856	9.8279	1.58622	1.56117
89.5	0.6403	5.329	0.1877	10.0081	9.8501	1.58979	1.56469
90.0	0.6388	5.316	0.1881	10.0326	9.8742	1.59368	1.56851
90.5	0.6374	5.305	0.1885	10.0534	9.8946	1.59699	1.57176
91.0	0.6360	5.293	0.1889	10.0762	9.9171	1.60061	1.57533
91.5	0.6345	5.281	0.1894	10.0991	9.9396	1.60424	1.57891
92.0	0.6331	5.269	0.1898	10.1221	9.9622	1.60790	1.58250
92.5	0.6317	5.257	0.1902	10.1452	9.9850	1.61157	1.58612
93.0	0.6303	5.246	0.1906	10.1665	10.0059	1.61495	1.58944
93.5	0.6289	5.234	0.1911	10.1898	10.0289	1.61865	1.59309
94.0	0.6275	5.222	0.1915	10.2132	10.0519	1.62237	1.59675
94.5	0.6261	5.210	0.1919	10.2367	10.0750	1.62611	1.60042
95.0	0.6247	5.199	0.1924	10.2584	10.0964	1.62955	1.60381
95.5	0.6233	5.187	0.1928	10.2821	10.1197	1.63332	1.60752
96.0	0.6220	5.176	0.1932	10.3040	10.1412	1.63679	1.61094
96.5	0.6206	5.164	0.1936	10.3279	10.1648	1.64059	1.61468
97.0	0.6193	5.154	0.1940	10.3479	10.1845	1.64377	1.61781
97.5	0.6179	5.142	0.1945	10.3721	10.2083	1.64761	1.62159
98.0	0.6166	5.131	0.1949	10.3943	10.2302	1.65114	1.62506
98.5	0.6152	5.120	0.1953	10.4167	10.2521	1.65469	1.62856
99.0	0.6139	5.109	0.1957	10.4391	10.2742	1.65825	1.63206
99.5	0.6126	5.098	0.1962	10.4616	10.2964	1.66183	1.63558
100.0	0.6112	5.086	0.1966	10.4863	10.3207	1.66575	1.63944

Southern Union Gas Company of Delaware

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And Affiliated Companies

ALBUQUERQUE NATURAL GAS CO.:

Durango Natural Gas Company
Mesa Grande Gas Company
Union Natural Gas Company

CONSUMERS NATURAL GAS COMPANY:

The Gas Company of New Mexico
Pecos Valley Gas Company
Pioneer Gas Utilities Company
Oklahoma General Gas Company
Lovington Gas Water & Sewer Co.

ARKANSAS WESTERN GAS COMPANY

KINGFISHER COUNTY GAS COMPANY

SOUTHWEST WATER COMPANY

SOUTHERN UNION GAS CO. (Texas)

M. & M. PIPE LINE COMPANY

CITIES WATER COMPANY (Texas)

Serving a Population of Over 200,000
Located in 54 Communities
in Five States.

705 BROWDER STREET

703 BROWDER STREET

of Standards. Table No. 5, of that circular, from which these data were taken, shows specific gravities, pounds per gallon, and gallons per pound, corresponding to the designated degrees A. P. I.; and the number of barrels per British long ton, per metric ton, etc., were found by arithmetical calculation, carefully checked before publication.

It is pertinent to mention in this connection that the circular also includes instructions for the proper reading of hydrometers and the correct determination of temperatures, as well as the following useful tables:

Table 1. Reduction of observed degrees A. P. I. to degrees A. P. I. at 60°F.

Table 2. Volume at 60°F. occupied by unit volume at indicated temperature.

Table 3. Reduction of observed specific gravities to specific gravities at 60°/60°F.

Table 4. Degrees A. P. I., pounds per gallon, and gallons per pound corresponding to the designated specific gravities.

Table 5. Specific gravities, pounds per gallon, and gallons per pound corresponding to the designated degrees A. P. I.

Table 6. Degrees A. P. I. (modulus 141.5) corresponding to degrees Baume (modulus 140.)

The tables given in this circular apply to all petroleum oils, both crude and refined, produced in the United States (and sufficiently well to oils produced elsewhere). Each grade of oil, gasoline, illuminating oil, lubricating and fuel oil, etc., falls into its proper place in the tables by reason of its specific gravity. Calculations are based on a temperature of 60°F. (15.6°C.)

Lease of Standard Pipe Line By North Central Gas Rumored

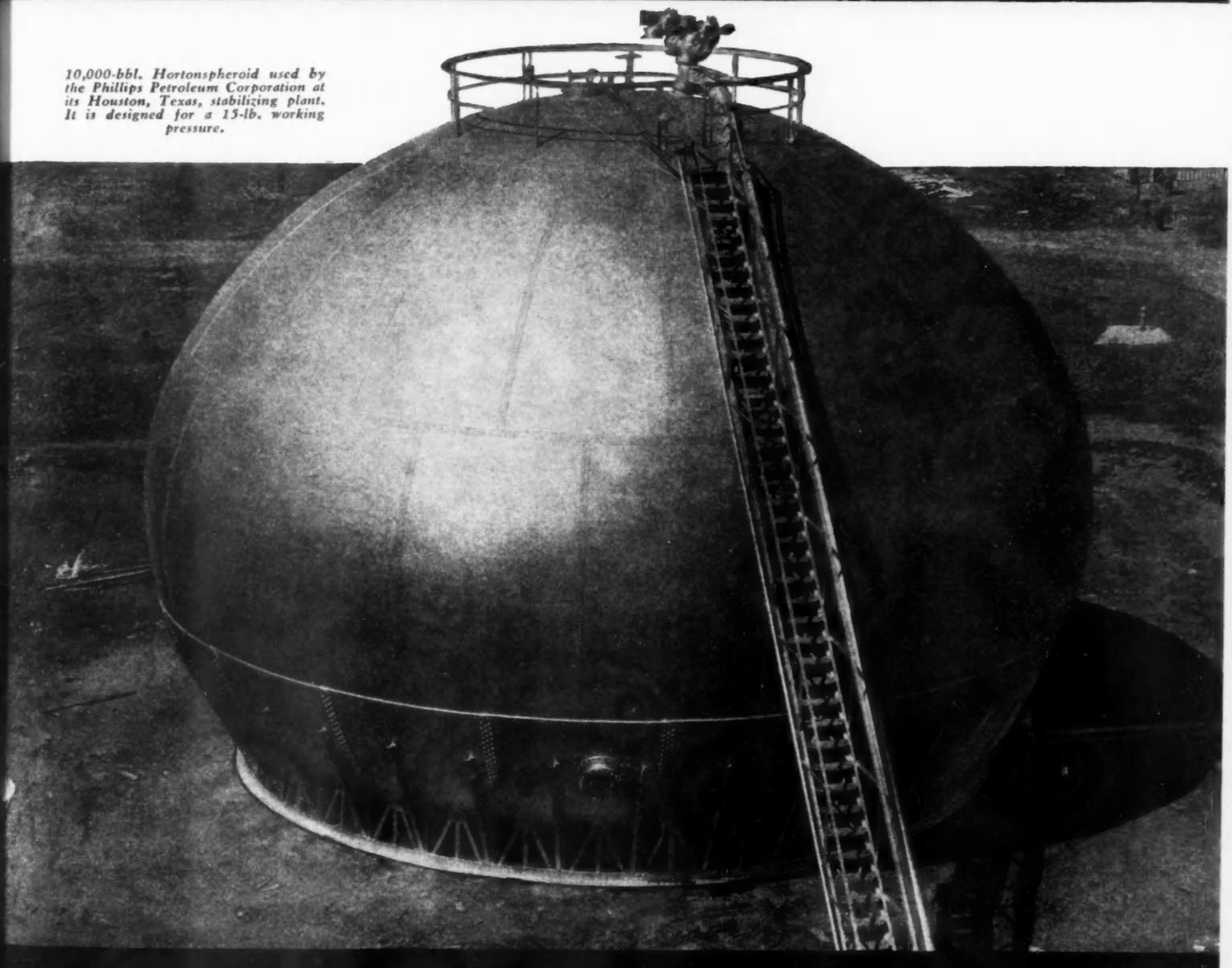
Casper, Wyo.—It is being rumored here, although without any official confirmation, that North Central Gas Company has leased the Standard Oil Company (Indiana) oil pipe line (originally laid by the Sinclair interests from Salt Creek to Freemon, Missouri), to be used as a part of its system to transport natural gas from Central Wyoming fields to Eastern Wyoming and Western Nebraska towns and communities.

It is known that engineers for the New York Oil Company—with which the North Central Gas Company is closely affiliated—have recently made surveys for the right-of-way and a pipe line from the town of Glenrock to the old Sinclair tank farm, 12 miles east of Glenrock. This might indicate that for the present the connecting line will be laid from Glenrock to the pipe line at the tank farm, and that the gas would be supplied to the oil line through the present facilities of New York Oil Company from Sand Draw and Muskrat fields to Glenrock. Such an arrangement would require only some 12 miles of new 10-inch line to connect with the Sinclair oil line. If this is done, it is said, the lateral from Guernsey to Laramie will be laid.

The pipe line consists of eight, 10, and 12-inch pipe; it was laid and equipped in 1922 at an estimated cost of some $30,000,000. Total length of the line is 720 miles, with the western terminus in Salt Creek and the eastern in Freeman, Missouri, about 20 miles from Kansas City. When the line was first laid there were 30 pump stations, but these were found unnecessary since, after leaving the tank farm at Glenrock, the oil would gravitate to Freeman. It is, therefore, the longest gravity pipe line in the world.

The HORTONSPHEROID

An economical method of storing oil products that boil at normal temperatures. It reduces both filling and standing evaporation losses.



10,000-bbl. Hortonspheroid used by the Phillips Petroleum Corporation at its Houston, Texas, stabilizing plant. It is designed for a 15-lb. working pressure.

ADAPTED for products too volatile to be held under Wiggins Roofs and not volatile enough to require the higher pressures afforded by Hortonspheres.

See other side for details—

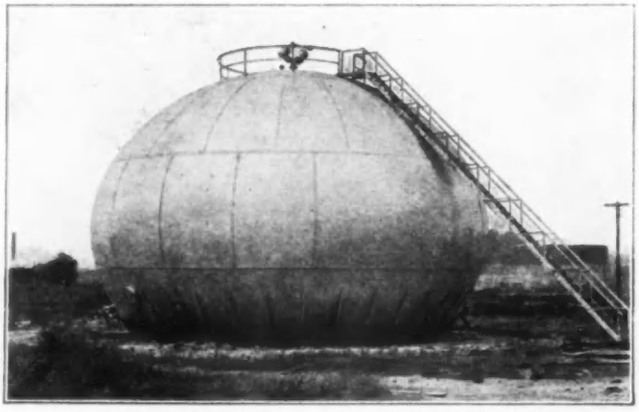
How The HORTONSPHEROID reduces both filling *and* standing evaporation losses from volatile oil products

THE Hortonspheroid is a new type of liquid storage container designed to provide economical pressure storage for oil products that boil at normal temperatures and which therefore would suffer excessive evaporation loss in ordinary tanks. By withstanding internal pressure THE HORTONSPHEROID reduces filling losses and stops evaporation loss from standing storage.

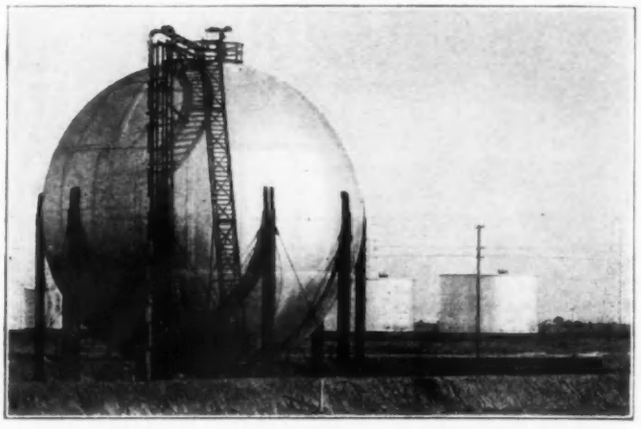
The following case illustrates how The Hortonspheroid reduces filling losses. Assume that a container is being filled with gasoline having a vapor pressure of 15 lbs. absolute. The relief valve is set for 15 lbs. As the tank fills, the air above the liquid becomes saturated; the pressure relief valve opens because the combined air and vapor pressure is 30 lbs.

As the tank empties, gasoline evaporates to keep the space above the liquid saturated. No air is admitted while the vapor pressure is 15 lbs. or greater. In filling, vapor condenses and tends to keep the vapor pressure constant. Therefore, between 15 and 30 lbs. absolute, The Hortonspheroid can be emptied and filled (after the first filling) without loss. The above illustration assumes ideal conditions, but with some gasolines, these conditions are realized over a fairly wide temperature range.

A test on casinghead gasoline (Gravity 82°-87° Be' I.B.P. 85° F.) in a closed container, through the hottest season of the year shows that 10 or 15 lbs. pressure will stop standing losses from ordinary casinghead gasoline. The most economical pressure to use depends on: (1) character of the liquid, (2) climatic conditions, (3) nature of storage —standing or working. If a Hortonspheroid is to be kept practically full most of the time the most economical pressure to use may be less than that required to prevent absolutely all standing storage losses. If on the other hand a spheroid is to be frequently filled and emptied it may be economical to use a higher pressure.



The Lion Oil Refining Company uses this 10,000-bbl. Hortonspheroid at Eldorado, Ark., to store Natural Gasoline. It is designed to withstand 15 lbs. pressure.



A Hortonsphere at a Mid-Continent refinery built for an operating pressure of 25 lbs. It is 48 ft. in diameter and holds 10,000 bbls.

STANDARD HORTONSPHEROID CAPACITIES

Capacity in Bbls.	Pressure in Lbs.	Diameter	Height
2,500	15	32′ 7″	25′ 3″
5,000	15	41′ 7″	32′ 6″
10,000	10	53′ 0″	39′ 5″
10,000	15	53′ 0″	39′ 5″
20,000	10	66′ 8″	48′ 0″
20,000	15	66′ 8″	48′ 0″

Other Products

The Hortonsphere is a spherical pressure tank, which reduces evaporation loss in the same manner as the Hortonspheroid, but for pressures of 25 lbs. and over. We also build Hortonspheres for pressure storage of gas. Hortonspheres for liquids are available in capacities of 5,000, 7,500 and 10,000 bbls.

Wiggins Floating Roofs reduce filling and breathing evaporation losses from working tanks. They ride on the surface of the liquid, blanketing it at all levels.

On standing storage tanks, the Wiggins Breather Roof flexes up and down to accommodate thermal expansion and contraction, without allowing vapor to escape from a tank and thereby stopping breathing losses.

Existing tanks may be re-roofed with Wiggins Roofs, and low pitch cone roofs in good condition converted into Breathers at low cost.

We build oil storage tanks in all capacities, cylindrical tanks of welded or riveted construction (from our Birmingham, Ala., and Bridgeburg, Ont., plants) elevated tanks, agitators, fractionating towers, absorbers, bubble towers, condenser boxes, crude stills—all kinds of refinery platework. Our nearest office will gladly supply full information and quotations.

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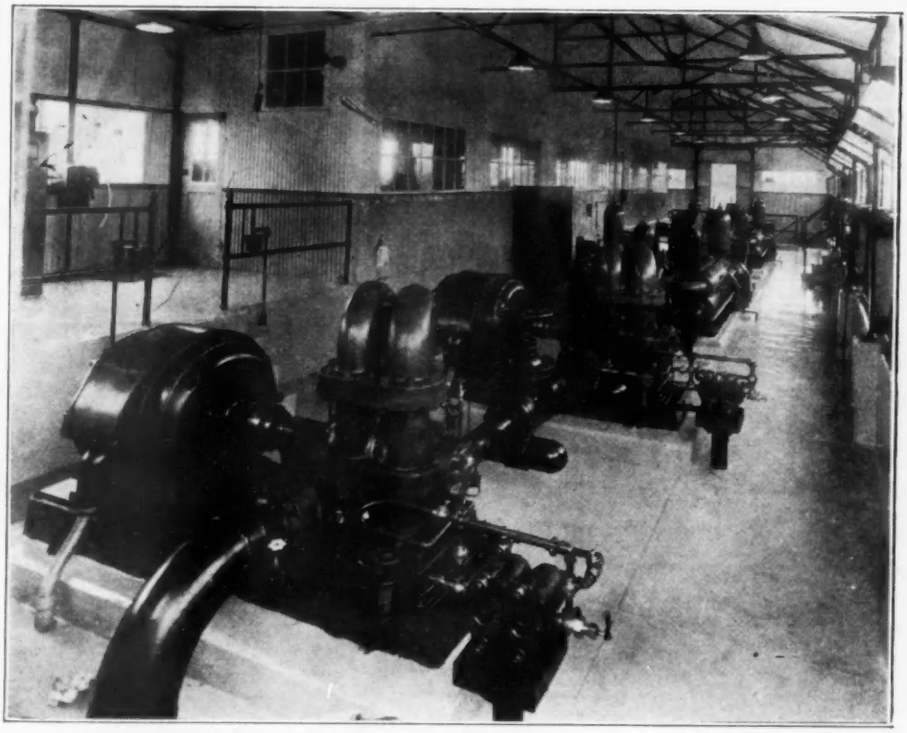

Coates Station, Empire Pipe Line Company, Oklahoma City. Two centrifugal pumps and motors in foreground, two reciprocating pumps at the back

Empire Uses Combination Pump Hook-up at Coates Station

By R. T. BAKER

DEVELOPMENT of the Oklahoma City field presented a great responsibility to the pipe line companies as well as the producers. Indian Territory Illuminating Oil Company drilled the discovery well and developed most of the acreage in the southern and central areas. This fact placed the burden of transporting the oil on the shoulders of the employes of Empire Pipe Line Company, an affiliated concern.

The efficiency of this organization in handling the large flow of crude, with all the difficulties of proration to contend with also, is seen in the fact that shipments through the Coates pumping station, just east of the Oklahoma City field, passed the 16,000,000-barrel mark this month, after approximately two years of service. Shipments today are being made at the rate of about 36,000 barrels daily.

In view of the fact that this station has played such a big part in the development of Oklahoma City and has aided the work of Empire Pipe Line Company, it is interesting to look into the equipment of the plant.

The building is made of corrugated iron, 100 feet long by 29 feet wide. All pumps are electrically driven, and several interesting features have been included in the installations.

Two 10-inch by 18-inch suction pumps, operated by two 30-horsepower electric motors are located at the west end of the building. They pull the oil from the line and discharge into the station tankage. The motors are of the squirrel cage type, eliminating fire hazard to a large extent.

Two Prescott pumps, 4¾-inch by 24-inch size, are located in the central part of the building. They are direct connected to two 200-horsepower General Electric motors, shut off from the pumps by a partition. They discharge into the eight-inch pipe line at about 800-pounds pressure. The pumps will handle about 12,500 barrels daily each. An office takes up the balance of the motor room.

At the east end of the building are located two four-inch, three-stage Worthington centrifugal pumps, direct connected to two 250-horsepower Allis-Chalmers motors. One of the pumps takes the oil at about 0 pounds pressure and raises it to around 400 pounds pressure, delivering it to the second pump which discharges into the line at 800 pounds pressure. Motors of both units are protected against fire hazards.

Study of the efficiency of operation of the two types of pipe line equipment by officials and employes of the company has given them a lot of valuable information, accord-

This JOINT

has a tensile strength of 60,000 to 75,000 lbs. per sq. inch . The weld is as ductile as the pipe and has greater resistance to corrosion.

. . . is one of the 241,352 joints, of 4" to 26" diameter, arc welded in pipe lines during 1930-1931 by the LINCOLN "SHIELDED ARC" PROCESS using LINCOLN "FLEETWELD" ELECTRODES and LINCOLN "STABLE-ARC" WELDERS

Speed of welding is approximately one minute for each inch diameter of pipe

THE LINCOLN ELECTRIC COMPANY

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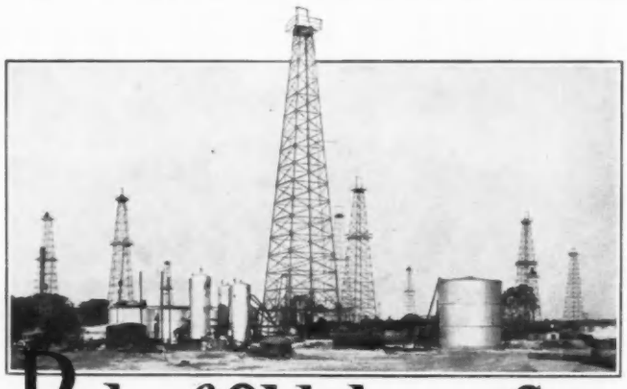
BOILER TUBES



Pride of Oklahoma City

Washington Derricks were the pride of the deep drilling crews at Oklahoma City. Many of the Derricks were used before, being moved in from other fields as a result of preference born of confidence in their proven ability.

At no time in the history of drilling has there been a better demonstration of stamina and dependable construction such as exhibited by the large number of Washington Derricks used in this field.

O'BRIEN STEEL CONSTRUCTION CO. INC. WASHINGTON DERRICKS RIG EQUIPMENT COMPANY

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ing to Joe Ham, foreman of the Oklahoma City district for Empire Pipe Line Company.

Centrifugals in Series

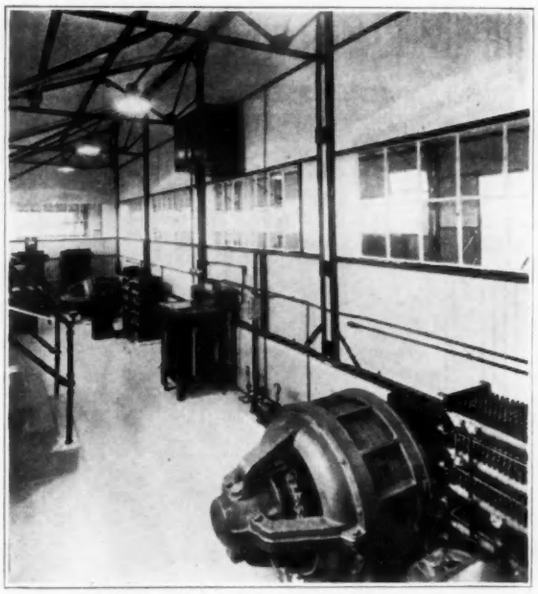
The two centrifugals, in series, will handle about the same amount of oil as the other two pumps, working together, so that the two types of installations may be said to be comparable in capacity.

One feature of the centrifugal units is the economy of housing and space occupied. It is found also that they will not hike the pressure on the line beyond the working pressure determined in case of an obstruction in the line.

No big difference in the original cost of the two types of equipment is apparent, and the difference in the power bill is not great. There is much that might be said in favor of both types of equipment. Developments in rings in the reciprocating pumps makes it possible for them to be operated direct connected to motors without the necessity for the construction of a spark proof partition, as has been the case in the past. In addition, many of the newer motors for use in pumping plants are of the squirrel cage type, which has the feature of spark protection in the motor itself.

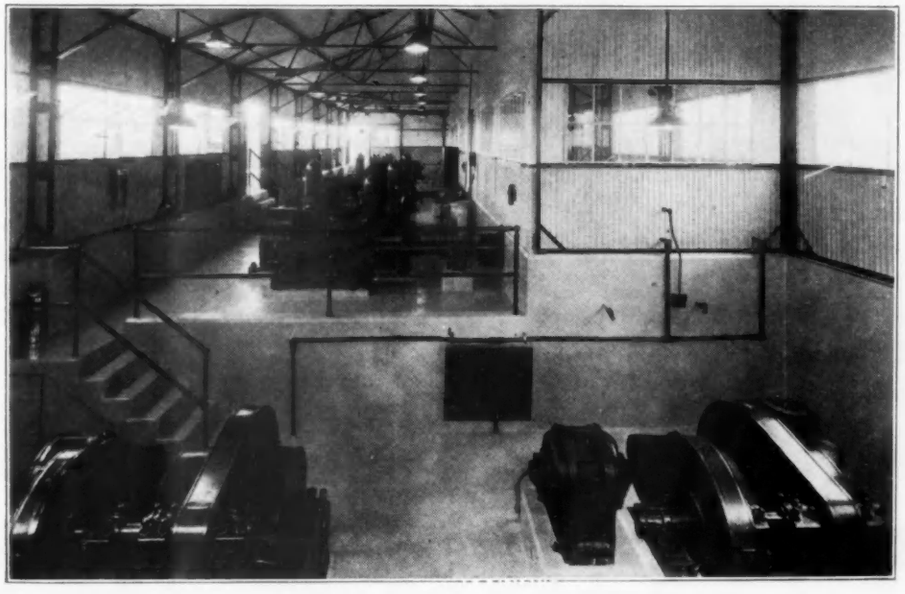
As a result electric power is easily available for both types of pumps, and in many instances, motorization of present reciprocating pump equipment is being carried out. In a large number of the newer stations in the Oklahoma City, area, however, the units are being built around the centrifugal pumps, direct connected with electric motors and housed together, as in the case with part of the equipment in the Empire plant. The development of the centrifugal pump is a recent advance and many pipe line men believe that most of the equipment of the future will be built around this type of pump, due to its small housing and foundation requirements, its efficiency as a booster pump, and its elasticity in operation.

The use of centrifugal equipment in connection with the operation of booster stations is one of its biggest features, as found in the Oklahoma City field. In the lines from this field, the pump takes the suction out of the pipe line directly and discharges directly back into the line, having increased the pressure of the oil without the necessity for tankage, station lines, manifolding, switching and numerous other articles of auxiliary equipment considered necessary in the old type pumping plant where the oil had to be pumped into a working tank from the line and it was then necessary to pick it up from the tank and force it into the outgoing line. In the elimination of this feature from booster pump stations, which number a majority in most long pipe lines, the centrifugal pump equipment has measured a big advantage over the older equipment.



Motor room, Coates Station. These motors are connected by shafts to two reciprocating pumps

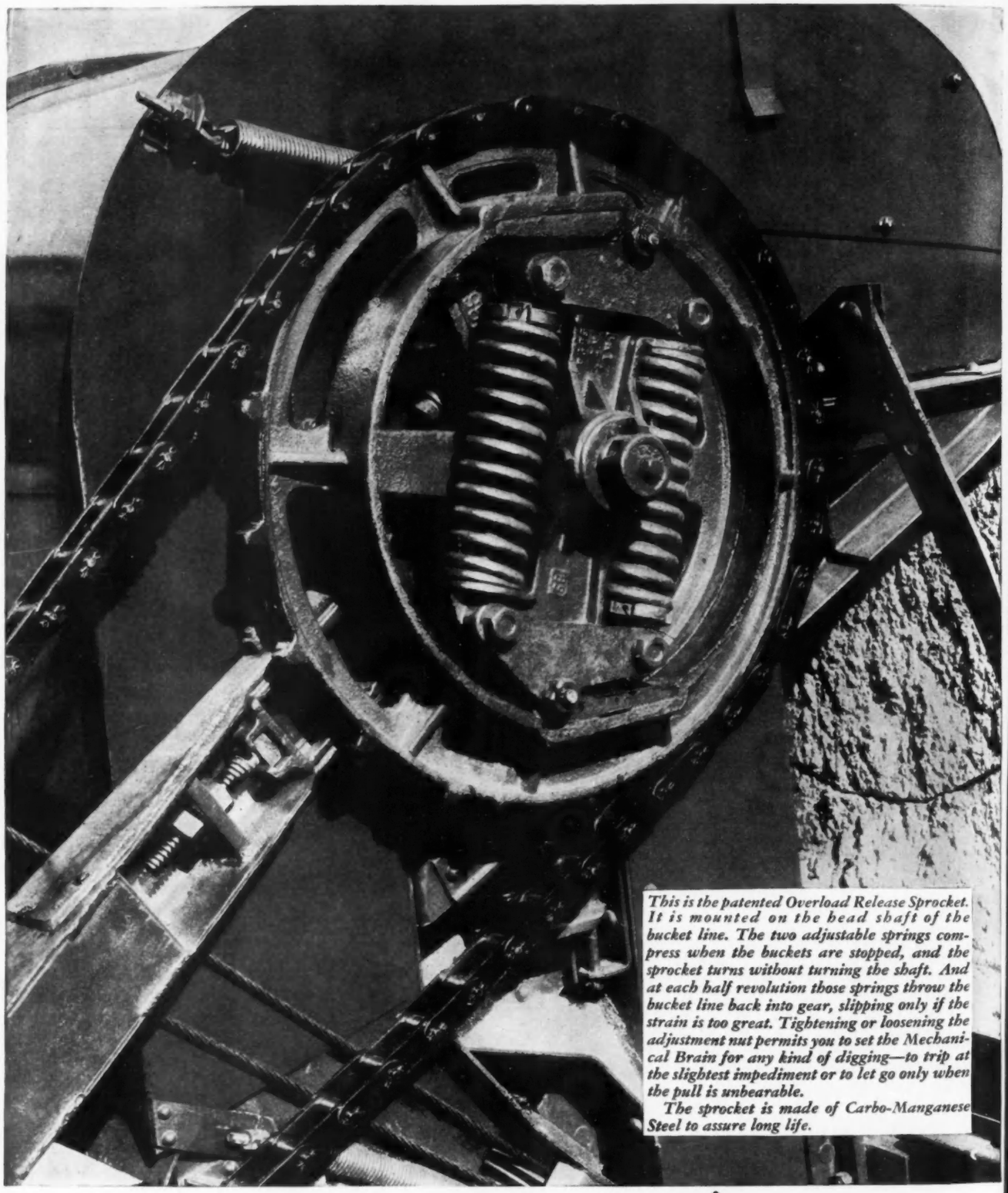
In areas where cheap, consistent electric power is available, pipe line men are using it as a substitute for Diesel engines and steam, where it is not considered advisable to discontinue the use of reciprocating pumps.



Suction pumps in foreground, reciprocating pumps and shafts to motors housed in room to right

There are many things that can be said in favor of both types of pumps, as demonstrated at Empire Pipe Line Company's Coates station. It is the judgment of pipe line men that there are some conditions where reciprocating pumps will give better service, and in other conditions the use of centrifugal pumps is found more beneficial. From the operations of the two types of pumps at Oklahoma City, Mr. Ham is convinced of the fact that centrifugal pumps will play a very definite part in the equipment of oil pipe lines of the future. He anticipates improvements in the future with this equipment, while recognizing the progress recently. The Coates station is worthy of the consideration of pipe line men who can visit it.

SPECIALIZING IN INVENTING FASTER, CHEAPER MACHINES



This is the patented Overload Release Sprocket. It is mounted on the head shaft of the bucket line. The two adjustable springs compress when the buckets are stopped, and the sprocket turns without turning the shaft. And at each half revolution those springs throw the bucket line back into gear, slipping only if the strain is too great. Tightening or loosening the adjustment nut permits you to set the Mechanical Brain for any kind of digging—to trip at the slightest impediment or to let go only when the pull is unbearable.

The sprocket is made of Carbo-Manganese Steel to assure long life.

BARBER STANDARDIZED MATERIAL HANDLING MACHINES **GR**

615 West Park Avenu

AND METHODS

The Mechanical Brain and Milling Action Digging cut through macadam pavement—we hear of jobs like this every day.

The Mechanical Brain is invaluable on digging like this. It lets go when the strain is too great, but keeps jerking at the rocks that are in the way.

The Mechanical Brain seems to know what to dig and not to dig. The Utility Special on town job that involves a lot of house service lines. Out of 50 encountered on a Kenosha job only one was broken.

Hidden behind a spoil bank of shale shaved off by milling action digging—the Mechanical Brain eases up the shocks of such digging as this.

EENE

Aurora, Illinois

The High Speed DITCHER *with the* MECHANICAL BRAIN

Does Surprising Things

Barber-Greene Ditchers are almost human. The B-G Mechanical Brain — Overload Release Sprocket — stops the cutting teeth when they encounter any underground obstruction—but starts them again, automatically, if the operator decides to wade through.

Pipes and conduits are seldom broken. The Mechanical Brain stops the ditching in time to save them.

And in all kinds of going, the Mechanical Brain softens the shocks of digging, saving motor and machines from sudden, straining stops.

In hard digging, the Mechanical Brain seems to sense when to ease up and when to bear down, keeping the ditcher constantly milling at whatever is in the way.

And this patented Mechanical Brain is one big reason why Barber-Greenes walk through where others dare not and cannot go. It is one reason why you practically never see a Barber-Greene broken down. It is one reason why Barber-Greenes show higher daily averages on all kinds of digging. It is one reason why Barber-Greenes invariably show lower costs per foot.

Ask for a copy of *Ditching Snapshots and Records.*

Standardized Belt Conveyors — Portable Belt Conveyors
Portable and Self-propelled Flight Conveyors
Self-propelled, Self-feeding Bucket Loaders
Flight and Belt Car Unloaders — Snow Loaders
Vertical Boom Ditchers

TRANSIT'S MANAGER OF OPERATIONS

D. L. NAUMAN

A new man with us. A man of long experience in shop management and production control.

Under his direction, TRANSIT'S *program will include a complete rearrangement of the present layout, and the installation of new machinery and methods.*

Modern straight-line production is the goal.

ENGINEERING AND SHOP PRACTICE

JENKINS MACHINE COMPANY. Machinist
Sheboygan, Wisconsin

CUTLER-HAMMER MANUFACTURING COMPANY. Machinist
Milwaukee, Wisconsin

PAULING-HARNISCHFEGER MANUFACTURING CO. Machinist
Milwaukee, Wis.

A. O. SMITH COMPANY. Tool Designer
Milwaukee, Wisconsin

FOUR WHEEL DRIVE WAGON CO.(Auto Trucks). Designer
Milwaukee, Wisconsin

THE FALK COMPANY, Steel Castings. Designer
Milwaukee, Wisconsin

GENERAL MOTORS, INC., Truck Division. Designer
Pontiac, Michigan

STATE FORESTRY DEPARTMENT. Fire Prevention Engineer
Madison, Wisconsin

ABRESCH-CRAMER AUTO TRUCK COMPANY. Designer
Milwaukee, Wisconsin

WHITING FOUNDRY EQUIPMENT CO. Estimating Engineer
Harvey, Illinois

EXECUTIVE EXPERIENCE

THE FALK COMPANY. Superintendent
Milwaukee, Wisconsin

ABRESCH-CRAMER AUTO TRUCK COMPANY. Superintendent
Milwaukee, Wisconsin

APEX ELECTRICAL COMPANY. Sales Manager
Chicago, Illinois

BROMLEY MERSELLES, INC. General Superintendent
Chicago, Illinois

ROBERTS-PETTIJOHN-WOOD, INCORPORATED.
Supervising Industrial Engineer
Chicago, Ill.

SNYDER'S LIMITED. Factory Manager
Waterloo, Ontario, Canada

WEBSTER ELECTRICAL COMPANY. Production Manager
Racine, Wisconsin

PROFESSIONAL EXPERIENCE

L. V. ESTES, INCORPORATED, Industrial Engineer & Consultant
Chicago, Ill

ROBERTS-PETTIJOHN-WOOD, INCORPORATED.
Manufacturing Consultant
Chicago, Illinois

MANAGEMENT SERVICE COMPANY. Manufacturing Consultant
Chicago, Illinois

BRADNER ENGINEERING COMPANY. Manufacturing Consultant
Chicago, Illinois

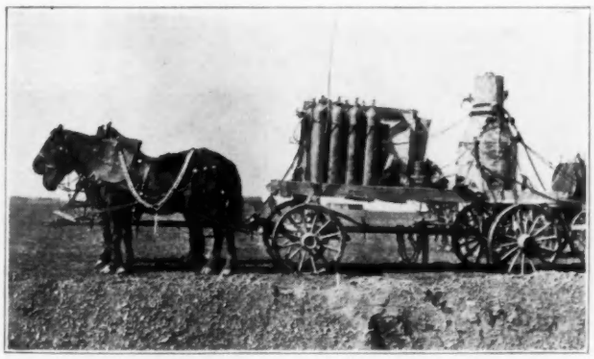
BEAUMONT, TEXAS
E. L. Wilson Hardware Company
LOS ANGELES
Republic Supply Company of California
TULSA and MID-CONTINENT FIELD
Frick-Reid Supply Corporation

NATIONAL TRANSIT
PUMP & MACHINE CO.
OIL CITY PA.

PHOENIX, ARIZ.
Pratt-Gilbert Co.
NEW ORLEANS, LA.
Woodward, Wight & Co.
SALT LAKE CITY, UTAH
F. C. Richmond Machinery Co.
ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

NEW YORK PHILADELPHIA CLEVELAND PITTSBURGH LOS ANGELES HOUSTON TULSA

Station 20 at West Tulsa. Main building on the left houses engines and pumps

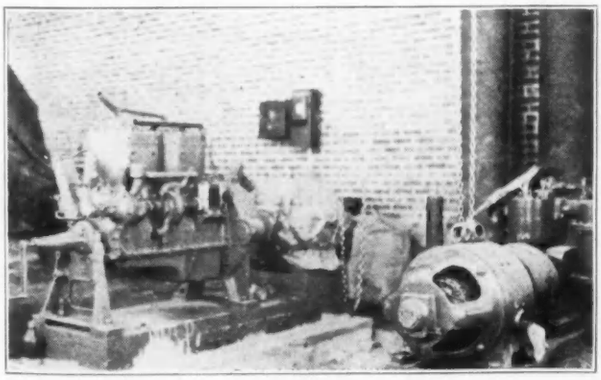


Generator wagon. This is one task wherein motor equipment fails, especially during the rainy season

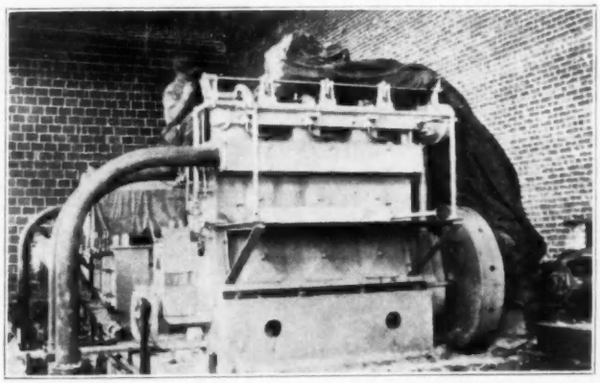
New Unit of Great Lakes Pipe Line Nearing Completion

ALL pipe is in the ground and three pump stations are nearing completion on the Barnsdall-Okmulgee-Muskogee section of the Great Lakes Pipe Line Company's system which eventually will deliver gasoline from the refineries of six major companies in the Mid-Continent to principal marketing centers in the Middle-West and Great Lakes regions. Since January 27, 1931, when gasoline first went into the main line, only two of the six companies involved in the venture have had direct connection with the system. Continental Oil Company at Ponca City and Barnsdall Oil Corporation at Barnsdall have been delivering their requirements through the 216 miles of eight-inch line which connects Ponca City and Barnsdall with the Kansas City terminal. Completion of the new unit is of special importance as it connects four other refineries into the system and gives outlet to three more of the stockholders in the Great Lakes Company. Gasoline should be on the move from these points not later than May 15 and that date should see completion of the El Dorado spur which ties in Skelly Oil Company's 23,000-barrel plant at El Dorado through 70 miles of four-inch line extending eastward to the main line.

Construction work on the line between Barnsdall and Muskogee has progressed at a satisfactory rate despite the handicap of spring rains and a number of days when high winds interfered with the welding crews. On April 15, the date that had been tentatively set for completion of construction work, all pipe between Barnsdall and Okmulgee, consisting of 65 miles of six and eight-inch line, was in the ground and approximately 25 miles of four-inch line between Okmulgee and Muskogee had been tested and buried. Welding crews were working on the last seven miles of line, tying-in the five-joint lengths which had been previously welded and strung along the right-of-way. Two Buckeye ditching machines were digging at the rate



Auxiliary lighting system and compressor unit. Waukesha gasoline engine in left foreground and Ingersoll-Rand compressor in right background. Electric motor and generator are Allis-Chalmers



170 horsepower Winton Diesels with 25 kilowatt Allis-Chalmers generator on extreme right

Tribute . .

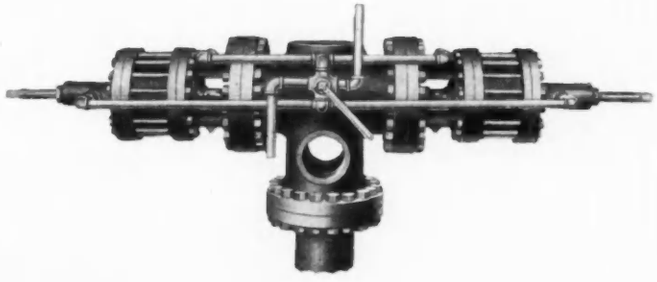
Since the first bit spudded in, well men have cheerfully taken their lives in their hands to produce oil. In summer and winter, in desert, forest and plain, in jungle, mountain and swamp, they have endured the hardships that go with the game. Without fear, they have drilled into the bowels

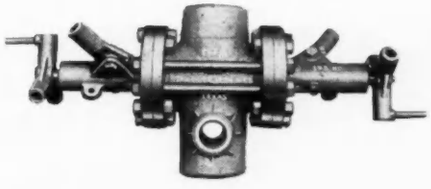
of the earth, often to loosen against themselves the furies of elemental Nature. Undaunted they have matched their cunning against Nature, and tamed Her to their will—though frequently at a cost. Nothing has been too bitter, too trying, too dangerous. Out of their courageous feats have come the Traditions of the Industry.

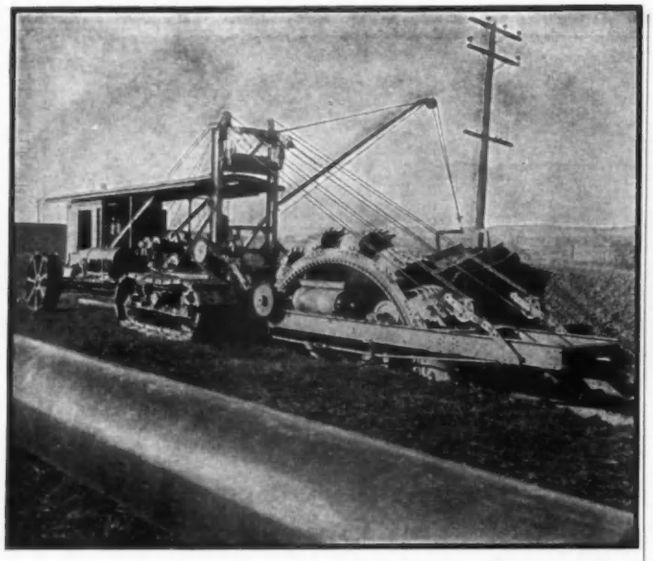
And, so long as these traditions survive, drillers, roughnecks and roustabouts will continue to pit their strength, skill and courage against the ruthless, implacable forces of Nature . . . and do it freely, joyfully and without thought of the price. In simple fairness to these gallant men, who are contributing that which now is vital to the progress of mankind, they deserve to be equipped with every device that will strengthen their power over the mighty forces with which they grapple.

CAMERON IRON WORKS, Inc.

HOUSTON - TEXAS







Right Through Hardpan and Limestone

One of the two Buckeye heavy-duty Model 48 Pipe Liners employed on this job is pictured in profitable action on a 24-inch natural gas line. Cutting through hardpan and some limestone, it is averaging 1000 lineal feet of 36-inch wide by 8 feet deep ditch in 8 hours. On other jobs, where soil conditions were favorable, this model has excavated as much as 5000 lineal feet of trench in one day.

Largest of Buckeye's complete line of Pipe Liners, Model 48 is expressly designed and constructed to deliver plenty of completed big trench at remarkably low cost. Its 6 cutting widths scale from 22 to 40 inches, inclusive, with a maximum digging depth of 8½ feet.

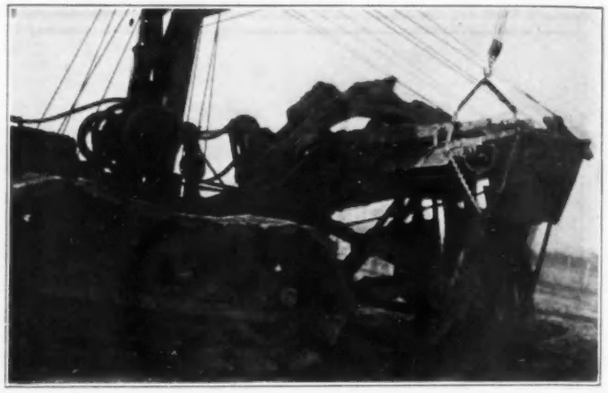
Built directly to the specifications of the industry's leading engineers and contractors, every Buckeye Pipe Liner — large or small, and within its respective service range — embodies the same dependable working ability. Over 30 years' successful experience has proved the soundness of the Buckeye operating principle and construction. More important, it has caused all Buckeyes to be recognized internationally as *the ditchers that best meet all oil, gas and pipe line requirements.*

Every prospective pipe line ditcher owner or user will be cheerfully sent, upon request, our interesting catalog, "BUCKEYE — *The Pipe Liner.*" Write for your copy today.

The Buckeye Traction Ditcher Co.
FINDLAY, OHIO

There's a Buckeye Sales and Service Office near You

for over thirty years
Buckeye

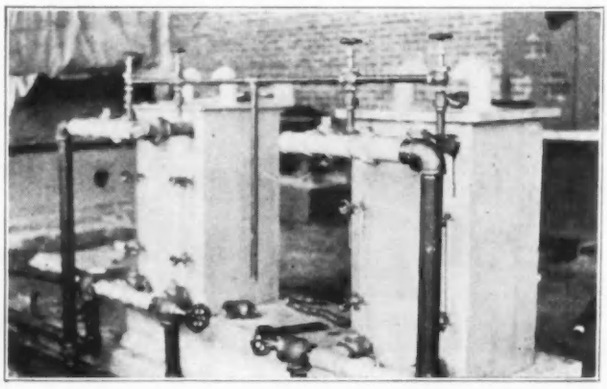


Setting in on a new section of the ditch

of more than 7500 feet each per 24 hours and were within sight of the Okmulgee station, all of which indicated that line construction would be well ahead of completion of the pump stations.

Station 20, located one mile west of West Tulsa, and Station 21, in the north edge of Okmulgee, are identical so far as equipment is concerned and represent the design which will be found throughout the system. The West Tulsa station is equipped with two Model 1580 Winton Diesel engines developing 170-horsepower at 270 revolutions per minute. Each drives a 4⅝-inch x 18-inch horizontal duplex Prescott-Menominee pump fitted with special stuffing boxes for handling gasoline. Each box is packed with about 10-inches of special material with a lantern rig in the center connecting with force feed lubricators. This pump normally would handle about 12,000 barrels of crude oil daily but has been geared down to move only about 8000 barrels of gasoline as this product is highly volatile and must be handled at a slower rate.

All electrical equipment was furnished by Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin. As long as either Diesel engine is running, electric power is furnished by a 25-kilowatt generator which drives off the main shaft between the engine and pump. An auxiliary lighting system is powered with a 4¼-inch x 5¾-inch four cylinder Waukesha gasoline engine which operates at a governed speed of 1200 revolutions per minute. Compressed air for starting the Diesels is furnished by a 5-inch x 2½-inch Ingersoll-Rand compressor which delivers to two storage tanks at 300 pounds per square inch. This unit is driven by



Lubricating oil filter system in West Tulsa station

88% Increase

in Gas Main and Pipe Line Construction

In 1930 our gas main and pipe line construction was 88% greater than in the previous year. And in 1929 this work showed an increase over 1928 of 150%.

The experience of our organization, trained in gas main and pipe line construction, is available for work of any character, in congested districts, cross-country, river crossings, etc.

THE U. G. I. CONTRACTING COMPANY
DIVISION OF
UNITED ENGINEERS & CONSTRUCTORS
INCORPORATED
DWIGHT P. ROBINSON, PRESIDENT

Philadelphia
112 North Broad Street

Chicago
Conway Building

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

AN "AMERICAN" WITH GAS ENGINE

Pictured is an "American" No. 4-A Fig. 1822 oil well pumping unit direct connected to a gasoline engine.

"American" units have been particularly designed to meet the various drive requirements of different localities. "American" units are adaptable for pulley, V-belt or direct drive by gasoline engine or electric motor.

Detailed figures and engineering data of typical installations of this equipment in both this country and others are available. Ask for them!

C. S. CARTER, *Sales Represetnative,*
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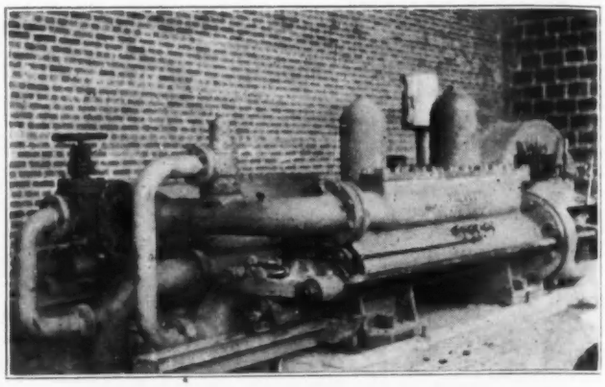
THE AMERICAN WELL WORKS

General Offices AURORA, ILLINOIS, *and Factory*

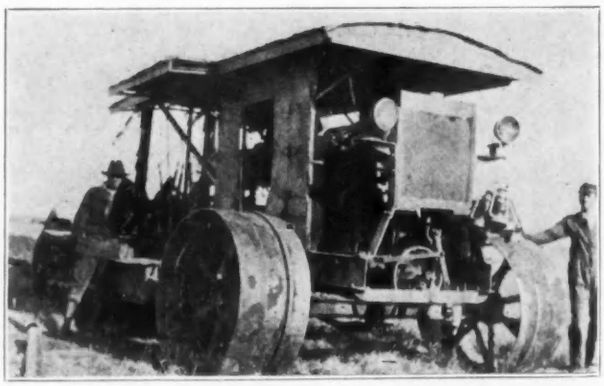


8000-barrel Prescott-Menominee pump specially designed for handling gasoline

a 7½-horsepower direct current motor which is wired to receive power from either the main power system or the auxiliary.

Boilers, fuel oil pumps, and the water treating system are housed in a separate building as a safety measure against the possibility of explosion from vapors which might escape from the line of pumps. The Permutit system of water treating is used. Fundamentally the process consists of passing the untreated water through a bed of sodium veolite salts where sodium salts are exchanged for the calcium-magnesium salts contained in the water supply. This is a chemical reaction resulting in the actual raising of the total solid content but exchanging soluble for insoluble salts. The sodium veolite bed treats a certain volume of water, depending upon the mineral content, and must then be reconditioned by treating with brine. Presence of large amounts of iron decreases the amount of water that can be treated without reconditioning.

All possible contingencies have been cared for in design of plant equipment and arrangement. In the event that both Diesel engines should go out of commission at the same time, the auxiliary lighting system can be immediately put into use furnishing lights for repair work and driving the compressor unit for starting purposes as well as supplying power to the smaller units such as water, fuel oil and lubricating oil pumps. The lines and connections are designed to pass a go-devil for removing any foreign matter from the system. All incoming gasoline is cleaned through Wheatley Brothers duplex pipe line strainers and the entire line is equipped with check valves made by the same company. This type of strainer permits cleaning without shutting down.



Two Buckeye machines of this type were employed on the Okmulgee-Muskogee line

Pipe line enamel backed by 77 years waterproofing experience

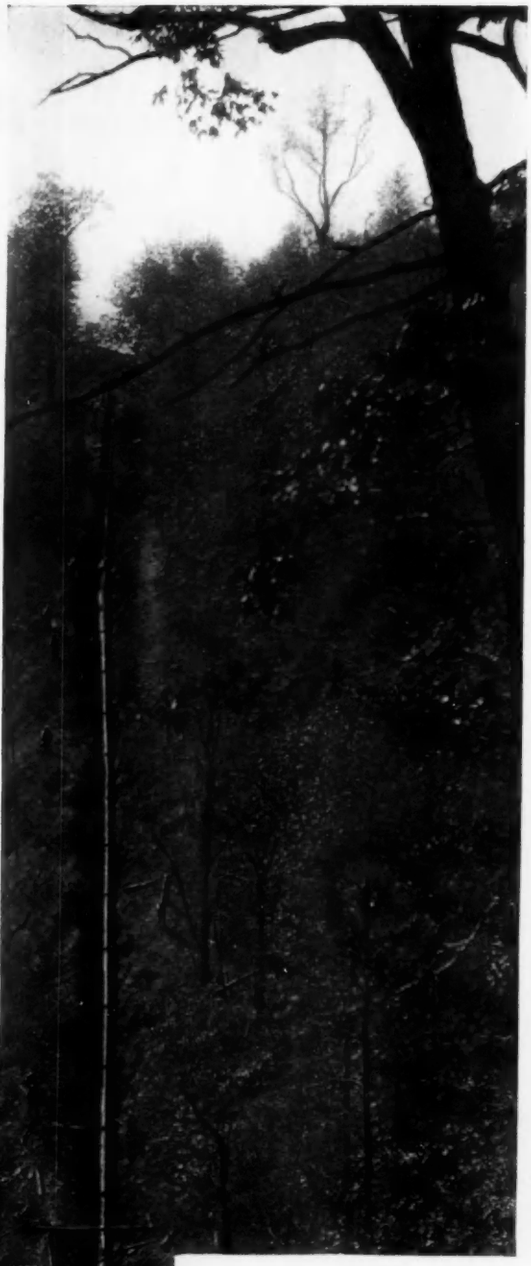
Barrett Specification

PIPE LINE ENAMEL

With a manufacturing history which dates back to 1854, Barrett waterproofing products have won wide acceptance for use in underground construction, roofing, roadbuilding and pipe line protection. Barrett Specification Pipe Line Enamel owes its success to this unmatched background of experience. There is a Barrett Specification Pipe Line Enamel to fit each pipe line requirement. And, thanks to Barrett uniformity, and carefully kept records, any order may be precisely duplicated at any time.

The Barrett Company

40 RECTOR STREET NEW YORK, N. Y.



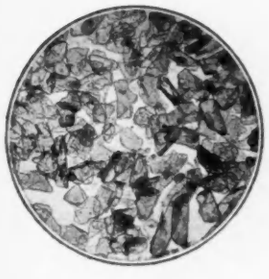
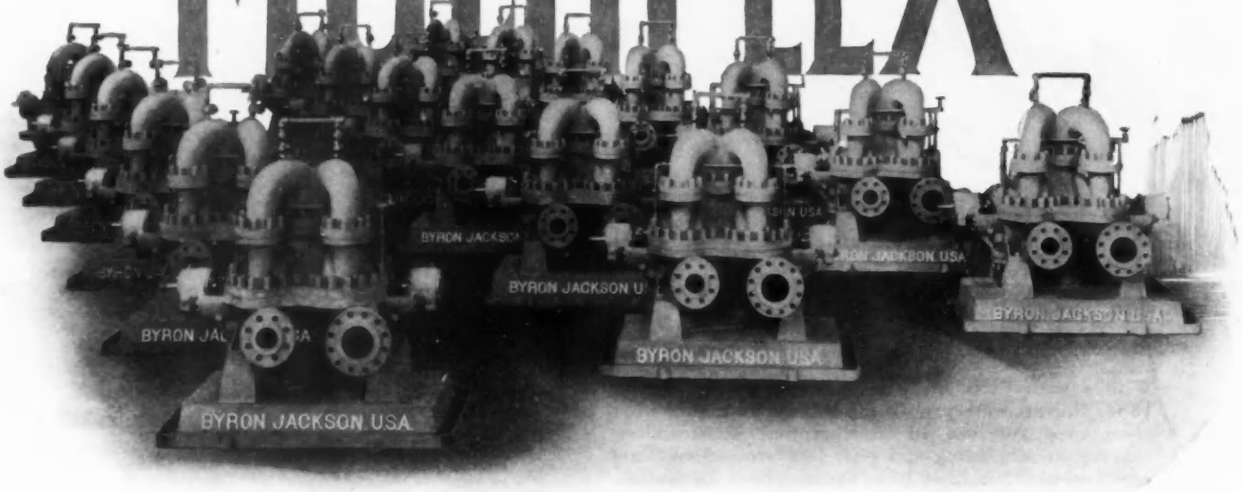


Photo-micrograph shows how flakes of internal reinforcement used by Barrett tend to interlock. They laminate with water-proofing agent and give Barrett Pipe Line Enamel unusual tensile strength and toughness.

MULTIPLEX



19 Byron Jackson Pumps for Phillips Pipe Line

WHEN the Phillips Pipe Line Company inaugurates service on its sensational 750 mile gasoline line from Borger, Texas to St. Louis, Byron Jackson Multiplex Pumps will be employed. The seven pumping stations along the line will be equipped with 19 Byron Jackson 4" 4-stage Multiplex oil line pumps. At each station two of these pumps operating in series will deliver 30,000 barrels per day against a total pressure of 750 pounds per square inch. The pumps will be driven by gasoline engines through reduction gears, operating at a speed of 3450 RPM. At each station a third pump will be used for stand-by service.

On completion of the witness tests, all pumps having exceeded their guaranteed efficiency, the Phillips Pipe Line Company expressed great satisfaction with both performance and mechanical design of the units.

Since 1872

BYRON JACKSON CO.

Factories:

Berkeley, Calif. Bethlehem, Pa. Los Angeles, Calif.

Branches: NEW YORK and CHICAGO

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BYRON JACKSON

CENTRIFUGAL PUMPS FOR EVERY SERVICE

Markets • Production • Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

East Texas Now 180,000 Barrels Above Allowable

Although it is reported that the machinery for prorating East Texas is now in operation, the facts fail to reveal that such is the case. Last week, the combined output of the East Texas fields amounted to a daily average of 339,750 barrels, an increase over the preceding week of 41,350 barrels. Compared with the revised allowable output of 160,000 barrels, last week's daily average represents an excess of 179,750 barrels daily. As a result of the further gain in East Texas, United States daily average crude production increased 50,800 barrels to a total of 2,475,000 barrels daily. Texas, outside the Gulf Coast, reported a total increase over the preceding week of 44,900 barrels daily.

Discussion of the situation in East Texas with Railroad Commissioner Parker indicated early this week that results are being obtained that may bring about a slight decrease in production there this week. Mr. Parker stated that reports received from Umpires Capers and Richmond are encouraging, although they report violations of the proration order by about six or seven operators. Just what steps will be taken to enforce proration upon companies that have ignored the railroad commission's order could not be ascertained. It is believed, however, that injunction proceedings will be instituted against operators that are not abiding by the order.

East Texas is being viewed with much disfavor in practically all sections of the country, as evidenced by comments made by representatives of the governors of other leading oil producing states. Many feel that more drastic action is necessary to bring East Texas into line. Undoubtedly, the criticism aroused against the situation in East Texas is justified by reason of the fact that this section is almost solely responsible for the present market situation. In fact, authoritative information intimates that at least one East Texas operator with large interests has made no secret of the fact that he will deliver all the oil he can find a market for—at today's prices.

Little Change Elsewhere

Aside from the further increase in production of East Texas, there was practically no important change in the status of other producing states last week. Oklahoma reported a gain of 5750 barrels, while Kansas reported a decrease of 2350 barrels. Arkansas, Eastern States and Rocky Mountain States reported small increases which were offset, to some extent by decreases in the Gulf Coast, North Louisiana and California. Compared with allowables, California is charged with a daily excess of 26,500 barrels; Oklahoma, with an excess of 46,050 barrels, while Texas shows an excess over the state allowable of 197,200 barrels. The latter figure shows up particularly unfavorable when it is noted that the total excess for the United States is 222,100 barrels.

The upward revision in allowable production for East Texas to 160,000 barrels, plus a prescribed increase of 5000 barrels a day at Van, brings the new allowable figure for Texas up to 767,000 barrels. With revisions made in both Oklahoma and Texas, the new indicated production limit for the United States stands at approximately 2,253,000 barrels. Compared with net requirements for fresh oil, however, last week's actual production of 2,475,000 barrels actually represents only an excess of about 35,000 barrels a day. Under this condition, it is seen that the effectiveness of proration in East Texas will react to the benefit of other sections of the United States.

Demoralized Gasoline Price Endangers Crude Stability

The Mid-Continent crude price structure now faces the most serious gasoline price schedule of the past 10 years Service station prices have gone down in the past week in such fashion that they are a thrust at crude oil.

Introduction of a third grade gasoline, to sell two cents below U. S. motor gasoline, has so far brought only disorganization. This policy was introduced in Standard Oil Company (Indiana) territory, which is the normal market for the most of the crude oil of the Mid-Continent.

In Tulsa for instance, U. S. motor gasoline is bringing but six cents per gallon, exclusive of the state tax, while the third grade gasoline is bringing five cents to the oil company. Prices identical to these are not typical over the whole Middle West but other cities have reported disorder in the gasoline market.

With the gross income to the oil company at five or six cents, and no prospect of early upward revision, the only relief is in the direction of lower prices for crude oil.

The demand for Mid-Continent crude oil, however, is increasing. Prairie Pipe Line Company reported runs of 2,324,000 barrels in April against 2,095,000 barrels in March.

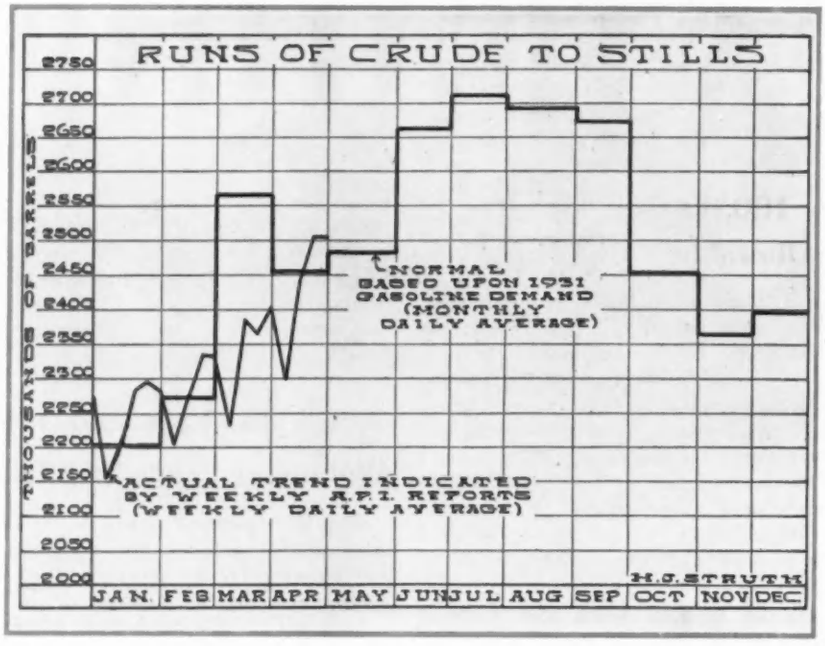
From four-hour gauges of wells in the Oklahoma City field, Otto Bradford, field umpire, reported Monday that this field had potential production of 7,864,000 barrels, a drop of 4.83 per cent from the potentials taken in January of this year.

Three federal judges denied the injunction plea of Sinclair Refining Company, filed recently to compel the Oklahoma Corporation Commission to fix its production figures on market demand. This action was brought after the commission had raised Oklahoma City output and then reduced it on the plea of Governor Murray. The company's attorneys gave notice of appeal on the contention that they want the principle of production fixed from market demand established.

Stocks of Gasoline Show 800,000-Barrel Decline

Another encouraging sign appeared last week when stocks of gasoline in the United States were drawn upon to the extent of about 838,000 barrels. Reports made to the American Petroleum Institute for the week ending May 2 showed that on that date gasoline stocks amounted to 45,613,000 barrels, compared with 46,451,000 barrels, as of April 25. On the basis of reported runs to stills it was indicated that crude throughput

MARKET SECTION



of United States refineries for the week ending May 2 amounted to a daily average of about 2,471,000 barrels. This represents a decline under the preceding week of about 36,000 barrels.

The figures received by the American Petroleum Institute are significant of material improvement in the demand for gasoline. They show that even though runs to stills were 36,000 barrels lower than in the preceding week, the withdrawal of gasoline from storage was equivalent to a considerably greater quantity than is represented by the lessened crude throughput. On the basis of an average gasoline yield of 43 per cent, the decline in crude runs to stills represents about 94,000 barrels of gasoline daily, or about 684,000 barrels of gasoline for the week. This, even though the production of gasoline was curtailed to the extent of 684,000 barrels last week, the decline in stocks of 838,000 barrels indicates that the demand was still above the rate of manufacture from a daily run of 2,500,000 barrels of crude to the extent of about 26,000 barrels a day.

Denver, Colo.—C. Leonard Smith's test on the Sand Creek dome is still trying to cement off water intrusion at 135 feet in its test on the Sand Creek dome structure which at 720 feet has had some good showings of oil and gas which have not been tested. Structure is in Larimer County, northwest of the Wellington and Fort Collins domes.

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending April 25, 1931

(Figures in barrels of 42 gallons)

District—	Potential Capacity (Daily) Total	Reporting	Per Cent	Crude Runs to Stills Total	Daily Average	Per Cent Operated	Gasoline Stocks (see note below)	Gas & Fuel Oil Stocks
East Coast	612,700	612,700	100.0	3,382,000	483,200	78.9	8,907,000	7,730,000
Appalachian	141,300	132,500	93.8	620,000	88,600	66.9	1,824,000	1,227,000
Indiana, Illinois, Kentucky	390,800	381,000	97.5	2,297,000	328,200	86.1	6,125,000	3,505,000
Oklahoma, Kansas, Missouri	461,100	412,200	89.4	1,940,000	277,100	67.2	3,667,000	3,938,000
Texas	809,000	743,500	91.9	3,923,000	560,400	75.4	7,953,000	9,002,000
Louisiana-Arkansas	266,600	262,000	98.3	1,171,000	167,300	63.9	2,272,000	2,327,000
Rocky Mountain	150,100	139,700	93.1	357,000	51,000	36.5	1,874,000	812,000
California	898,500	887,600	98.8	3,340,000	477,100	53.8	*13,829,000	98,860,000
Total week April 25	3,730,100	3,571,200	95.7	17,030,000	2,432,900	68.1	46,451,000	127,401,000
Total week April 18	3,730,100	3,571,200	95.7	17,039,000	2,434,100	68.2	46,384,000	126,835,000
Total April 26, 1930	3,678,900	3,518,400	95.6	18,897,000	2,699,600	76.7	**53,713,000	**136,389,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included Above in the totals of their respective districts.								
Texas Gulf Coast	529,500	529,500	100.0	2,935,000	419,300	79.2	6,820,000	6,546,000
Louisiana Gulf Coast	147,500	147,500	100.0	783,000	111,900	75.9	2,108,000	1,309,000

NOTE: In all the refinery districts indicated except California, figures in this column represent gasoline stocks at refineries. In *California, they represent the total inventory of finished gasoline and engine distillate held by reporting companies wherever located within continental United States—(stocks at refineries, water terminals and all sales distributing stations, including products in transit thereto).

**Revised due to change in California.

MARKET SECTION

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

State—	Indicated Demand Second Quarter 1931	Economic Limit Second Quarter 1931	Daily Average Last Week	Daily Excess Last Week	Daily Average Since January 1	Daily Excess Since† January 1
Arkansas	58,600	56,000	46,850	—9,150	48,752	—5,248
California	591,500	500,000*	526,500	26,500	529,633	29,633
Kansas	118,300	114,000	107,400	—6,600	110,016	516
Louisiana	78,900	71,000	69,400	—1,600	68,395	—2,605
Oklahoma	551,000	505,000*	551,050	46,050	501,237	16,237
Texas	798,700	767,000*	964,200	197,200	746,878	82,878
Balance of U. S...	254,000	240,000	209,700	—30,300	207,004	—25,496
Total	2,451,000	2,253,000	2,475,100	222,100	2,211,915	95,915

*Allowable.
†Excess based upon average allowable to date.

Shipments of Oil by Tank Car From East Texas at New Peak

Tyler, Texas.—Supported by attractive railroad rates and a ready market for the crude, the operators of tank car racks in the East Texas district increased their shipments to a new peak of 184,665 barrels daily during the week ending April 22 with prospects of the volume advancing to about 250,000 barrels daily had not proration enforcement taken a new start May 1. Popularity of East Texas crude with refiners throughout the Southwest, Middlewest and in Canada and on the Atlantic coast is strikingly illustrated by the large volume of oil purchased for tank car delivery, or for a joint movement by rail and water. During the same period the three trunk lines in operation at that time transported a daily average of 67,565 barrels, and three local refineries were tendered 6000 barrels daily, making a total of 258,230 barrels daily average oil movement for the week. Field storage absorbed the balance of the 298,380 barrels daily average production.

Direct rail hauls on East Texas crude in large volumes to refineries in Toronto, Canada; Joliet, East St. Louis and Wood River, Illinois; Kansas City, Missouri; Camden and El Dorado,

Cracked Gasoline Production

Week Ending April 25, 1931

(Barrels of 42 gallons)

District	Potential Charging Capacity Total	Reporting	Per Cent	Production Total	Daily Average
East Coast	246,900	222,900	90.3	600,000	85,700
Appalachian	45,900	43,400	94.6	132,000	18,800
Ind., Ill., Ky.	294,200	280,200	95.2	618,000	88,300
Okla., Kans., Mo.	219,900	197,900	90.0	401,000	57,300
Texas	395,500	379,400	95.9	825,000	117,900
Louisiana-Arkansas	109,400	106,900	97.7	230,000	32,900
Rocky Mountain	95,100	95,100	100.0	117,000	16,700
California	182,700	182,700	100.0	306,000	43,700
Total week Apr. 25.	1,589,600	1,508,500	94.9	3,229,000	461,300
Total week Apr. 18.	1,589,600	1,502,900	94.5	3,270,000	467,100
Total April 26, 1930		Not Available			

The Texas and Louisiana Gulf Coastal Figures Shown Below are included above in the totals of their respective districts.

Texas Gulf Coast.	305,000	300,500	98.5	668,000	95,400
Louisiana G. Coast	77,000	77,000	100.0	167,000	23,900

Imports of Petroleum

(Barrels of 42 gallons)

AT ATLANTIC COAST PORTS—	Week Ended April 25	Week Ended April 18
Baltimore	60,000	295,000
Boston	155,000	.....
New York	648,000	768,000
Philadelphia	171,000	75,000
Others	148,000	"A" 396,000
Total	1,182,000	1,534,000
Daily Average	168,857	219,143
AT GULF COAST PORTS—		
Galveston District	17,000	.....
New Orleans and Baton Rouge	.....	52,000
Port Arthur and Sabine District	.....	.....
Tampa	.....	.....
Total	17,000	52,000
Daily Average	2,428	7,428
AT ALL UNITED STATES PORTS—		
Total	1,199,000	1,586,000
Daily Average	171,286	226,571
Daily Average Four Weeks Ended	230,393	235,071
Distribution of Total Imports Is As Follows:		
Crude	468,000	974,000
Gasoline	243,000	256,000
Kerosene	.....	.....
Gas Oil	28,000	.....
Fuel Oil	460,000	"A" 356,000
Lubricants	.....	.....
Total	1,199,000	1,586,000

"A"—Revised.

California Oil Receipts

(Barrels of 42 gallons)

AT ATLANTIC COAST PORTS—	Week Ended April 25	Week Ended April 18
Baltimore	81,000	73,000
Boston	.....	.....
New York	224,000	51,000
Philadelphia	114,000	.....
Others	77,000	"A" 153,000
Total	496,000	277,000
Daily Average	70,857	39,571
AT GULF COAST PORTS—		
Total	120,000	.....
Daily Average	17,143	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	616,000	277,000
Daily Average	88,000	39,571
Daily Average Four Weeks Ended	56,143	52,964

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
April	657,050	122,200	640,950	206,800	42,100	57,800	138,700	75,950	625,700	2,576,250	77,018,100
May	663,300	131,000	662,350	203,900	39,900	53,800	137,150	82,500	623,700	2,597,700	80,529,600
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
1931											
January	452,000	106,350	511,050	188,850	41,100	50,700	110,300	96,700	535,700	2,092,750	64,874,450
February	473,750	114,450	523,700	185,600	43,950	49,950	109,800	100,100	527,300	2,128,600	59,600,450
March	531,900	110,550	585,000	177,950	40,250	47,550	108,800	95,400	528,100	2,225,500	68,990,850
April*	542,700	109,650	715,550	185,950	39,050	46,900	111,250	94,950	527,600	2,373,700	71,211,750
April 25	545,300	109,750	759,600	190,750	39,150	46,800	110,300	94,550	528,100	2,424,300	16,970,100
May 2	551,050	107,400	804,500	190,050	39,050	46,850	111,700	98,000	526,500	2,475,100	17,325,700
Increase	5,750	.....	44,900	.....	.....	50	1,400	3,450	.....	50,800	355,600
Decrease	.....	2,350	.....	700	100	.....	.....	.....	1,600	.....	.....

* Preliminary—Subject to revision.

Last Week's Daily Average Production by Districts

TEXAS	May 2	April 25
Panhandle District	56,500	57,300
North Texas	57,200	57,250
West Central Texas	25,150	25,150
West Texas	212,650	208,600
East Central Texas	50,750	49,700
East Texas	339,750	298,400
Southwest Texas	62,500	63,200
Texas Gulf Coast	159,700	162,900
Total Texas	964,200	922,500
OKLAHOMA	551,050	545,300
CALIFORNIA	526,500	528,100
KANSAS	107,400	109,750

LOUISIANA	May 2	April 25
North Louisiana	39,050	39,150
Louisiana Gulf Coast	30,350	27,850
Total Louisiana	69,400	67,000
ARKANSAS	46,850	46,800
MOUNTAIN STATES		
Wyoming	43,750	43,300
Montana	8,650	8,650
Colorado	4,250	4,050
New Mexico	41,350	38,550
Total Mountain States	98,000	94,550
EASTERN STATES	111,700	110,300
TOTAL UNITED STATES	2,475,100	2,424,300

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	5	3	3	..	..	1	2	2	245	....
California	8	7	6	6	..	..	2	1	7,200	3,585
Indiana	..	3	..	1	..	..	..	2	....	10
Kansas	5	9	2	4	2	4	1	1	4,975	1,375
Kentucky	8	3	3	2	5	..	..	1	13	10
Louisiana	10	9	2	5	3	1	5	3	2,175	3,607
Michigan	..	3	..	..	..	3	..	..	....	....
Mississippi	2	1	..	..	..	1	2	..	....	....
New Mexico	..	1	..	..	..	..	..	1	....	....
New York	7	1	..	..	6	1	1	..	....	....
Ohio	17	9	2	3	10	4	5	2	10	6
Oklahoma	39	23	14	12	9	3	16	8	45,185	32,705
Pennsylvania	2	11	..	6	1	2	1	3	....	22
Texas	113	128	71	89	10	7	32	32	474,055	425,297
West Virginia	17	11	2	1	12	8	3	2	4	2
					58	35	70	58	533,862	466,619
Total	233	222	105	129						
Increase this week	11	..	..	..	23	..	12	12	67,243	....
Decrease this week	..	..	24	..	..	..	..	..	....	....

Comparison of Permits Granted for New Wells

State—	Week Ending May 2	Previous week	This week 1930	Total this month	This month 1930	Total this year	Total this date last year	1930 year total
Arkansas	..	..	4	..	4	17	41	108
California	15	5	19	15	19	140	260	922
Louisiana	11	6	13	..	13	123	366	948
Kansas	8	7	25	8	25	166	345	944
Oklahoma	11	22	87	11	87	398	1,074	2,830
Texas	114	157	213	114	213	1,810	2,699	7,052
Total	159	197	361	159	361	2,654	4,785	12,804

MARKET SECTION

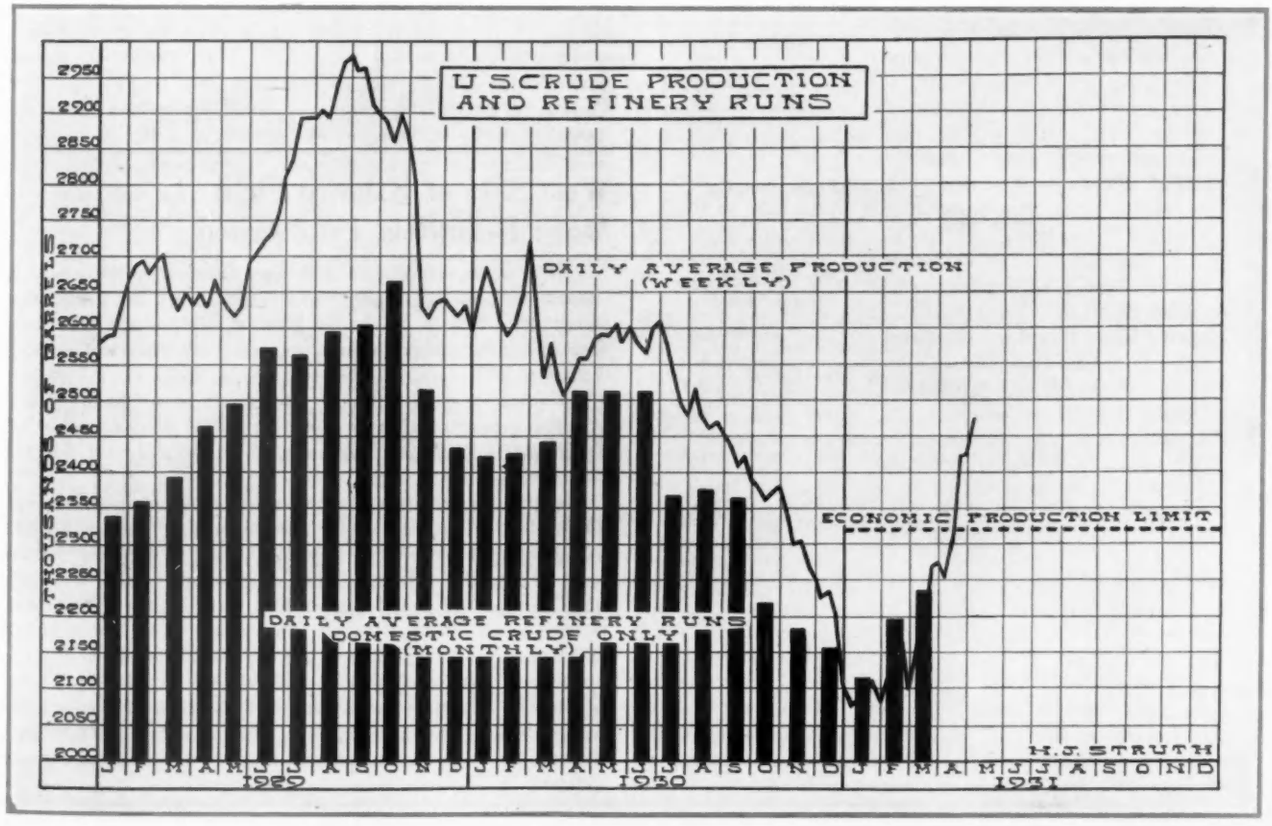
Arkansas; Shreveport, Plaquemine, Westwego, Chalmette, Destrehan, New Orleans and Cut Off Junction (near Shreveport), Louisiana; Dallas, Fort Worth, Angus, Minerva, Taylor, Somerset, Mirando City, Corpus Christi, Houston, Baytown, Texas City, Port Arthur, Atreco and Sun Station, Texas, are now being made. Heaviest shipments are being made to points on the Texas Gulf Coast and in Louisiana, and a large per cent is then finding its way to refineries on the Atlantic coast, substituting for South American and California crudes mostly.

Houston Oil Company, operating big racks at Kilgore and Amigo, has been the largest tank car shipper of crude during the past month, and during the week ending April 22 averaged 26,700 barrels daily. This company loaded an average of 11,380 barrels daily from its Amigo rack on the Cotton Belt line in Smith County. Humble Oil & Refining Company shipped 22,685 barrels daily during this period from its rack at Kilgore, and averaged 22,425 barrels daily in addition to the above in direct pipe line movement through the Humble Pipe Line Company's system. The latter will have a second trunk line outlet available shortly.

Arkansas Fuel Oil Company held second place on tank car shipments of crude, having handled an average of 23,950 barrels daily over its Willow Springs rack from the Longview field. This company has been handling oil produced by Yount-Lee Oil Company and also all of its own output, and consigning 13,355 barrels daily to the Shreveport plants of the Louisiana Oil & Refining Company, an affiliated concern. The remaining 10,595 barrels daily average was transported to Plaquemine, Louisiana, to be loaded aboard tankers for delivery to Atlantic Coast plants of Cities Service Oil Company. These tank car shipments will be largely substituted shortly by the operation of Arkansas Pipe Line Corporation's eight-inch trunk line to Shreveport, as construction work was completed late last week.

Atlas Pipe Line Company increased its tank car shipments to a daily average of 16,450 barrels during the week ending April 22, but has since shifted mostly to direct pipe line movement through the completion of its eight-inch trunk line to Jewella, near Shreveport, April 27. This concern shipped 8325 barrels daily to the Jewella plant of the Spartan Refining Company, an affiliated concern, and handled 7025 barrels daily on common carrier basis for Stanolind Crude Oil Purchasing Company. Tank car deliveries to Standard Oil Company of Louisiana's tank farm at Cut Off Junction, Louisiana, averaged 1100 barrels daily. East Texas Refining Company has worked up a big common carrier business on its Gregg County pipe line and rack unit, which also serves the company's refinery at Longview, and averaged 12,250 barrels daily on tank car loadings. Sabine Pipe Line Company's (Lee H. Gray et al) Kilgore field rack loaded 10,135 barrels daily during this period including 9430 barrels for consignment to the Toronto, Canada, plant of the British-American Oil Company et al, and 705 barrels for Root Refining Company.

Racks operated by Sinclair-Texas Pipe Line Company in the Kilgore and Joiner fields averaged 5590 and 11,730 barrels daily, respectively. All of this crude was consigned to Sinclair Refining Company at Texas City, Sinco, near Houston, and Kansas City, Missouri. Tyler Pipe Line Company averaged 1375 barrels daily from its Tyler rack, with only a few days part capacity runs, but has capacity to become one of the largest shippers in the district. It will also supply the 15,000-barrel



MARKET SECTION

refinery now nearing completion at Tyler by Taylor Refining Company.

New rail rates on crude moving in tank car lots from East Texas points to various points in East Texas are being made weekly by the Texas Railroad Commission. Movement of this oil to Texas-Mexican border towns has followed the granting of an 18-cent per 100 pounds tariff from racks on the I. & G. N. Railroad between Longview, Henderson and Arp to Laredo and Mirando City, Texas. A rate of 13 cents per 100 pounds to Thrall and Taylor and 15 cents per 100 pounds to San Antonio and Somerset applies on crude shipments from the above points on the I. & G. N. Railroad. Crude shipments to Corpus Christi and Viola from racks at Kilgore, Reeds and Overton have been given a 14 cents per 100 pounds rate, while shipments originating at Henderson and Friar for Corpus Christi and Viola now have a 16-cent rate. The Cotton Belt Railroad has been authorized to charge 15 cents per 100 pounds on crude shipments from racks at Amigo and Tyler to Pettus and Corpus Christi, and a rate of 14 cents per 100 pounds from the above two racks to Wichita Falls. Granting of this latter rate is an indication that East Texas crude is again to go to Wichita Falls refiners.

Magnolia Pipe Line Company handled an average of 22,900 barrels daily via its East Texas 10-inch trunk line system during the week ending April 22, and Humble Pipe Line Company ranked second with 22,425 barrels daily, while Gulf Pipe Line Company averaged 22,240 barrels daily, making a total of 67,565 barrels daily for the three lines. Daily average shipments of crude via tank cars follows:

Shipper—	Daily Average in Barrels
Houston Oil Company	26,700
Arkansas Fuel Oil Company	23,950
Humble Oil & Refining Company	22,685
Sinclair-Texas Pipe Line Company	17,310
Atlas Pipe Line Company	16,450
East Texas Refining Company	12,250
Sabine Pipe Line Company	10,135
Independent Pipe Line Company	9,700
Inland Waterways Pipe Line Company	8,740
Petroleum Marketing Corporation	6,970
Simms Oil Company	6,215
Gulf Coast Pipe Line Company	5,890
Panola Pipe Line Corporation	5,695
Crown Pipe Line Corporation	4,150
Rusk County Pipe Line Company	3,180
Tyler Pipe Line Company	1,375
Stanolind Oil & Gas Company	1,265
Illinois Pipe Line Company	900
Woodley Petroleum Company	805
Independent Oil Supply Company	300
Total	184,665

San Antonio, Texas. — The Schoolfield and O'Byrne pool, Duval County, is getting two more tests. Magnolia Petroleum Company's Wilson 3, Survey 134, was spudded on April 25 and at last reports was drilling at 1310 feet. The Texas Company's Bishop Duval Land Company 1, Survey 135, spudded on the same date, is down 1400 feet. The deepest well in Duval County at this time is Humble Oil & Refining Company's Hokler 50, Survey 164, Kohler field, which is drilling at 6084 feet. This well set 6⅝-inch casing at 6009 feet.

Oklahoma City Output High, Completions Low During Week

Oklahoma City.—Two extremes were reached in the Oklahoma City pool during April when production records were established both for one-day and 30-day periods and the number of completions dropped to the lowest point that has been experienced since the latter part of 1929. With 761 completed wells at the end of the month, total production from the pool was 4,967,667 barrels, or a daily average of 165,555 barrels and an excess of 942,357 barrels over the preceeding month. This increase came about through orders of the corporation commission whereby the percentages of allowable production were increased and through the taking of potential gauges during the first 15 days of the period. Peak production for one day was obtained on April 15 when 126 wells produced 283,576 barrels. Under the most recent order of the commission, daily allowable production was set at 165,000 barrels for the last 10 days in April and all of the month of May.

Prior to April 20, when the order was issued, allowable production was 125,000 barrels daily but under-produced wells were being allowed to make up production and a considerable amount of overage was established during the taking of potentials. All excess so established must be made up during the succeeding proration periods.

Although only nine wells were completed during the month the activity curve for May is expected to be on the incline. Several operations which were shut down during most of April are to be resumed within a few days and a small number of new locations are being announced. Present information indicates that not less than 1000 acres of possible Wilcox territory remains to be tested and the next spurt of development probably will be in Section 15-11n-3w, where Saffer et al recently completed their Giles 1 for an initial flow of 7184 barrels in four hours, extending production approximately one-quarter mile to the southwest. This completion already has inspired the drilling of one new test in the southwest quarter of Section 23-11n-3w, at about the same relative distance from the top of the structure.

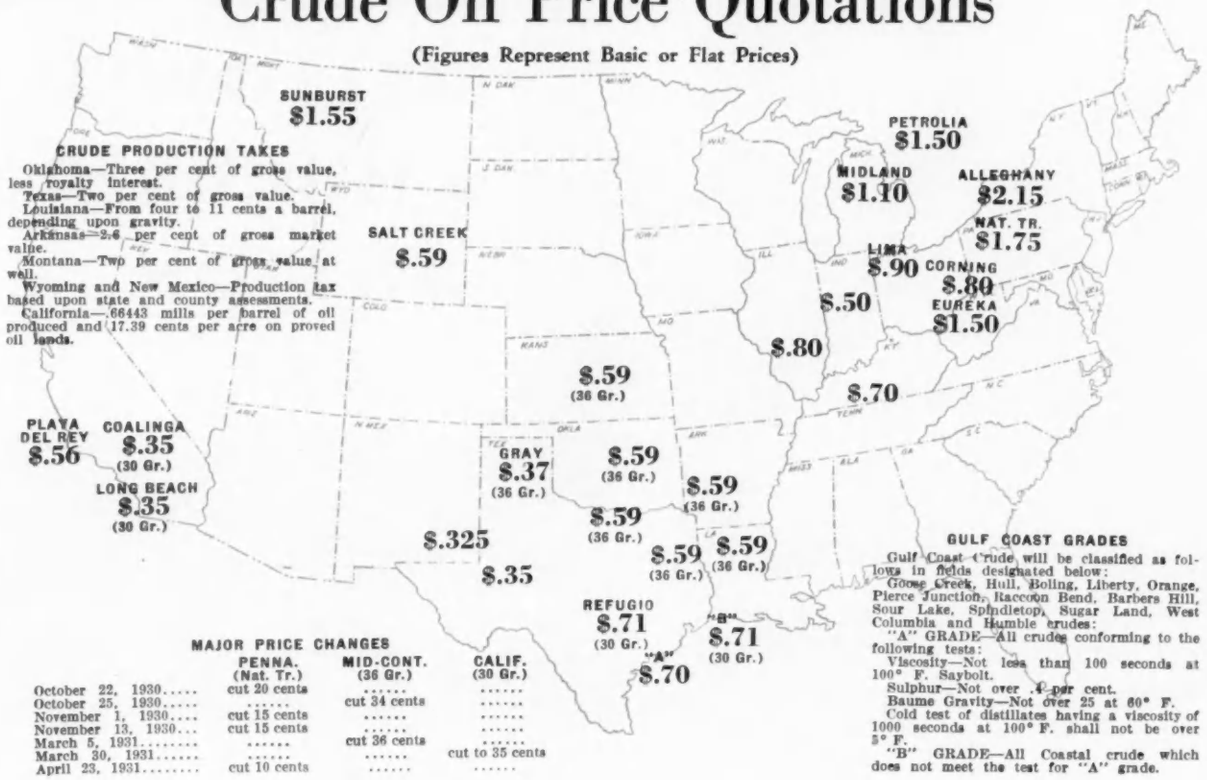
West Side of Kilgore Field More Definitely Established

Tyler, Texas.—Sinclair Oil & Gas Company's Kinney 1, an outpost well on the south end of the Joiner field was completed May 5 with an initial flow of 125 barrels oil during first 35-minute gauge through tubing from nine feet of sand drilled to 3675 feet, or 3295 feet below sea-level. About nine miles south of this producer salt water was encountered in Woodbine sand at 3780 to 3800 feet by W. R. Ramsey et al's Kangerga 1, R. A. Allen Survey. The latter found water at 3355 feet below sea level.

Deadline on production to the west of the main part of the Kilgore field in Gregg County became more definitely established late last week when Capital Drilling Company's Osborne 1, R. R. Bobbitt Survey, found only water in the Woodbine sand horizon and abandoned at 4010 feet. Mazda Oil Corporation's Cotton 1, located one mile southeast of the above failure and nearer production, flowed 200 barrels oil first 10 minutes on open flow from sand at 3659 to 3670 feet, or 3342 feet below sea level. Since this well was drilled below the established water level of the field without making water, it is believed that the hole is crooked and not as deep as the measurements indicate.

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.

Texas—Two per cent of gross value.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 per cent of gross market value.

Montana—Two per cent of gross value at well.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

GULF COAST GRADES

Gulf Coast Crude will be classified as follows in fields designated below:

Goose Creek, Hull, Boling, Liberty, Orange, Pierce Junction, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugar Land, West Columbia and Humble crudes:

"A" GRADE—All crudes conforming to the following tests:

Viscosity—Not less than 100 seconds at 100° F. Saybolt.

Sulphur—Not over .4 per cent.

Baume Gravity—Not over 25 at 60° F.

Cold test of distillates having a viscosity of 1000 seconds at 100° F. shall not be over 5° F.

"B" GRADE—All Coastal crude which does not meet the test for "A" grade.

MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (30 Gr.)
October 22, 1930.....	cut 20 cents	.....	.....
October 25, 1930.....	.....	cut 34 cents	.....
November 1, 1930....	cut 15 cents	.....	.....
November 13, 1930...	cut 15 cents	.....	.....
March 5, 1931.....	.....	cut 36 cents	.....
March 30, 1931.....	.....	.....	cut to 35 cents
April 23, 1931.....	cut 10 cents	.....	.....

Official Postings and Differentials

(Revised to May 7, 1931)

California: (Prices effective March 30).

In all **Los Angeles Basin** fields (except Playa del Rey) oil from 14 gravity to 20.9 gravity is 65 cents. Deduct 3 cents for each degree up the scale to 30.9, making this the lowest at 35 cents. Fields in this group include **Alamitos Heights, Long Beach, Seal Beach, Torrance, Athens, Rosecrans, Dominguez, Santa Fe Springs, Montebello, Huntington Beach, East Coyote, Richfield and Brea-Olinda.**

Playa Del Rey: 56 cents flat, 20-26 gr.

In the **San Joaquin Valley** fields, 11 to 11.9 gravity crude is 50 cents per barrel, 14 to 14.9 gravity, 55 cents. Differential of 2 cents off each degree up the scale makes 30 gravity and above 35 cents per barrel. Fields in this group include **Coalinga, McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills** and **Lost Hills.**

Santa Paula 14 to 19.9 gravity, 60 cents; 20 gravity, 58 cents; 21 gravity, 56 cents, and take off 3 cents for each degree up to and including 28 gravity. **Orcutt** 14 to 19.9 gravity, 55 cents, and take off 2 cents for each degree up to and including 29 gravity which is 35 cents.

Oklahoma-Kansas-North Texas: (Effective March 5, 1931). Below 29 gravity 43 cents with differential of 2 cents to 40 and above. Magnolia Petroleum Company posts 40 cents for below 26 gravity with differential of 1 cent to 29 gravity, 43 cents. From 29 to 40 and above, same schedule as foregoing. North Texas posting applies to oil produced in **Wichita, Wilbarger, Archer,** Northern Young, Van Zandt, Mexia, Powell, Boggy Creek, Richland, Wortham, Currie.

Ranger, North Texas, Moran and **Cook County** oil: Below 29 gravity, 33 cents with differential of 2 cents for each degree to 40 and above which is posted at 57 cents a barrel.

Texas Panhandle: (Effective April 21, 1931).

Gray County: Below 35 gravity, 33 cents with differential of 2 cents for each degree to 40 and above which is posted at 45 cents a barrel.

Carson-Hutchinson Counties: Below 35 gravity, 30 cents with differential of 2 cents for each degree to 40 and above which is posted at 42 cents a barrel.

East Texas: (Effective March 26). Same scale of prices as Oklahoma-Kansas-North Texas.

West Texas and New Mexico: (Effective April 21, 1931).

Winkler and Pecos County, Texas: Flat price of 35 cents a barrel.

Lea County, New Mexico: flat price of 32.5 cents a barrel.

Southwest Texas: (Effective April 21, 1931).

Refugio Heavy: Below 25 gravity 60 cents a barrel. **Refugio Light:** 25-25.9 gravity 61 cents with differential of 2 cents for each degree to 35 and above which is posted at 81 cents a barrel. **Mirando Crude:** 60 cents. **Salt Flat:** 53 cents. **Darst Creek:** 53 cents. **Pettus:** 75 cents. **Luling:** 38 cents; **Corsicana Heavy** 38 cents.

Gulf Coast: (Effective April 21, 1931).

Grade **"A":** 70 cents a barrel. Grade **"B":** Below 25 gravity 60 cents a barrel; 25-25.9, 61 cents with differential of 2 cents for each degree to 35 and above which is posted at 81 cents a barrel. **High Island,** 75 cents; **Jennings,** 80 cents; **Markham,** 50 cents.

North Louisiana and Arkansas.

Pine Island, Haynesville, Bull Bayou, El Dorado, Cotton Valley, Zwolle: Below 29, 43 cents with differential of 2 cents to 40 and above. Magnolia Petroleum Company posts 40 cents for below 26 gravity with 1 cent differential to 29 gravity, 43 cents. From 29 to 40 and above, same schedule as foregoing. **Stephens:** Below 29, 54 cents with differential of 4 cents to 32 and above. **Smackover,** 45 cents; **El Dorado east field** 70 cents; **Bellevue,** 45 cents.

Rocky Mountain States. (Effective Mar. 10, 1931).

Salt Creek: 29-29.9 gravity 45 cents with differential of 2 cents to 37 and above. **Elk Basin and Grass Creek,** 90 cents; **Big Muddy,** 65 cents; **Lance Creek,** 98 cents; **Rock Creek** 66 cents; **Mule Creek,** $1.20; **Rex Lake,** $1.10; **Osage,** 50 cents; **Cat Creek,** $1.25; **Pondera,** $1.45; **Sunburst,** $1.55; **Hogback, N. M.,** $1.40.

Eastern States. (Effective Mar. 10, 1931).

Bradford, Allegany district, $2.15; **National Transit** oil, $1.75; **Southwest Pennsylvania** oil, $1.60; **Eureka P. L. (W. Va.)** $1.50; **Buckeye P. L. oil,** $1.25; **Corning** crude, $1.15; **Somerset in Eureka Lines, 75 cents; Ragland, 60 cents; Oil City, Ky., 70 cents.**

Michigan—Midland, $1.10; **Muskegon,** below 29 gravity, 65 cents with differential of 4 cents to 35 gravity; 31-31.9, 92 cents with 3 cent differential to 44 gravity and above.

Central States: (Effective March 5, 1931).

Wooster, 99 cents; **Lima,** 90 cents; **Waterloo,** $1.20; **Indiana,** 50 cents; **Princeton,** 80 cents; **Illinois,** 80 cents; **Western Kentucky,** 75 cents.

Canada: (Effective October 28, 1930).

Petrolia, $1.50; **Oil Springs,** $1.57.

The MOTOR OIL "MELLOWED A HUNDRED MILLION YEARS"

Simplifies its name

HENCEFORTH the Sinclair Refining Company will discontinue the use of "Mobiline" as a trade name for its Pennsylvania Motor Oil.

With the tremendous increase in the use of Sinclair Mobiline Pennsylvania Motor Oil it has been decided, for the sake of brevity and clarity, and to avoid confusion with any other motor oil, to eliminate the word Mobiline. The new name will be simply "Sinclair Pennsylvania Motor Oil".

THE CHANGE IS IN NAME ONLY

Sinclair Pennsylvania Motor Oil will continue to be made 100% from Bradford-Allegany crude oil—the highest priced of all Pennsylvania grade crude oils—the rare oil formed by Nature in the Devonian Age more than a hundred million years ago.

Sinclair Pennsylvania will continue to be the finest motor oil that money can buy—an oil that is triple-filtered, stripped of its carbon-forming compounds and freed from trouble-making petroleum jelly at as low as 60° F. below zero, a temperature much lower than is required for the removal of wax only.

If you have not yet stocked Sinclair Pennsylvania Motor Oil a postal addressed to our nearest office will bring a Sinclair representative who will give you full details about this fast selling Pennsylvania grade oil.

Sinclair Refining Company (Inc.), New York, Atlanta, Chicago, Fort Worth, Houston, Kansas City. Sinclair Refining Company of Canada, Ltd., Toronto. Sinclair Refining Company of California, Los Angeles.

SINCLAIR *Pennsylvania*

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guaranteed by SINCLAIR REFINING CO. INC. to be 100% pure PENNSYLVANIA GRADE OIL

MOTOR OIL

Foreign Pipe Line Projects Will Test Skill of Engineers
(*Continued from page 64*)

pipe line from a carrier of crude to a carrier of refined products, after which, except for crude in such quantities as required by cracking stills at Abadan, only refined products will be pumped away.

New Lines in Mexico

Engineers representing the James F. Martin Corporation, construction contractors of New York and Tampico, and the Mexican Eagle Oil Company, Ltd., have already tackled the problem of altitude in the construction of the Aguila's line from the Tampico District to Mexico City, now about 65 per cent complete. In this case, oil will be hoisted from a low elevation to a height of 6560 feet above sea level to get it over the Sierra Madre Range, whence it will flow by gravity over the remaining distance of approximately 75 miles.

The Huasteca Company also is said to be planning the construction of a pipe line from the southern fields to Mexico City.

The Electric Bond & Share Company, operating through its subsidiary, the Mexican Gas Company, is said to be contemplating the construction of a 600-mile gas line from Monterrey to Mexico City.

Major Foreign Trunk Lines at a Glance

Company	From	To	Diameter Inches	Length (Miles)
RUSSIA				
Azneft Oil Trust	Baku	Batoum	10	535
Azneft Oil Trust	Baku	Batoum	8	535
Grozneft Oil Trust	Grozny	Tuapse	10	390
Grozneft Oil Trust	Grozny	Makhach Kala	8	100
Grozneft Oil Trust	Grozny	Ukraine	[a]	750
Grozneft Oil Trust	Grozny	Moscow	[b]	2000
COLOMBIA				
Andian National Corporation, Ltd.	El Centro	Cartagena	10	335
VENEZUELA				
Colon Oil Corporation, Ltd.	Ro Tarra	Boca Escolante	8	90
Creole Petroleum Corporation	Quirequire	Caripito	8	20
ROUMANIA				
Regia Publica a Conductelor de Petrole ale Statului	Campini	Constanta	10	187½
de Petrole ale Statului	Baicoi	Giugiu	5	103
de Petrole ale Statului	Baicoi	Giugiu	5	103
de Petrole ale Statului	Baicoi	Bucarest	5	53
PERSIA				
Anglo-Persian Oil Company, Ltd.	Tembi (Masjid-i-Suleiman) via Kut Abdullah	Abadan	[c]	136
Anglo-Persian Oil Company, Ltd.	Haft Kel	Kut Abdullah	[d]	61
Khanaqin Oil Company	Naft Khaneh	Khanaqin	4	20
BURMA				
Burmah Oil Company, Ltd.	Chauk	Yenangyaung	10	30
Burmah Oil Company, Ltd.	Chauk	Yenangyaung	8	30
Burmah Oil Company, Ltd.	Yenangyaung	Rangoon	10	275
IRAQ				
Iraq Petroleum Company, Ltd.				
British Section	Kirkuk, Iraq	Bay of Acre, Palestine		575[e]
French Section	Syrian Frontier	Tripoli, Syria		250[e]

[a] Under construction.
[b] Proposed.
[c] Capacity 171,500 barrels per day.
[d] Branch line.
[e] Estimated.

New Colombian Oil Law Provides for Pipe Lines

The new Colombian petroleum law, which becomes effective on May 10, 1931, grants to every producer the right to construct one or more pipe lines "for the service of his own exploitation" and provides also for the construction of common-carrier lines; but, like other sections of the law, it contains certain jokers and trick clauses which doubtless will operate in conjunction with other ill-advised clauses of the law discussed recently in these columns to retard the development of the country's petroleum resources.

Governmental permission, as might have been expected, is made a prerequisite for pipe line construction; but the law as enacted is much more lenient in this respect than was the original wording of the bill, which was so written that denial of construction permits might be based on broad economic and technical grounds. The law as finally passed limits these to technical grounds, disputes concerning which may be resolved by arbitration.

The new law shows a general disposition of fairness on the part of the law-makers, as compared with prior legislation; and it is to be regretted that certain clauses were included in the final draft which afford opportunity for confiscation through cancellation, which limit profits unduly, and which provide for the reversion of pipe line facilities to the government upon expiration or cancellation of contracts of comparatively short duration.

Article 40 provides for the reversion of pipe lines and plant to the government upon expiration of concessions (30 years, prorogable in certain cases to 10 years more) or upon cancellation; and cancellation may be claimed for any one of eight different causes, all more or less reasonable except one which provides that the operator may lose his concession in event of failure to agree with his neighbor for the inauguration of a co-operative or unit plan of operation. Abuse of this clause might allow an impecunious concessionnaire to ride on the back of his neighbor; or it might afford opportunity to politicians of a type not unknown in Colombia (or in these United States of America), to hamper and harass any pipe line or oil operator, however honest and efficient he might be in the fulfillment of other concessionary obligations.

Article 39 provides that pipe line tariffs will be fixed by the government, taking into account amortization of capital, expense of maintenance, administration, and exploitation, and equitable gain or profit. Profits are to be fixed in accord between the concessionnaire and the government "on the basis of the profits which in other countries and especially in the United States similar enterprises of pipe lines may have, . . ."

One might not expect a Colombian legislator to recognize or admit the vast difference between conditions obtaining in Colombia and in the United States; but the fact remains that capital for the development of the country must be attracted from afar, whether from the United States or from Europe, and must be compensated at rates higher than those ruling in the United States for crossing the ocean and taking the greater risks encountered in the development of a tropical jungle country.

Article 38 provides that pipe lines constructed by non-producers will be considered as common carriers, and retains unto the government a preference right to 20 per cent of their capacity for the transport of royalty oils.

The new law imposes a tax of 2½ per cent of gross income earned by common carrier lines.

(*Continued from page 37*)

conform to the proposal made by the Oil States Advisory Committee. He also pointed out the fact that Texas has a serious over-production problem that demands immediate action on the part of the Texas legislature. The meeting was continued through Tuesday, May 5, for further discussion of the proposed pact.

Following are a few of the pertinent proposals contained in the tentative interstate compact:

Ratable Taking and Common Purchase

That whenever the full production from any common source of supply of crude petroleum in this state can only be obtained under conditions constituting waste as herein defined, then any operator, having the right to drill into and produce oil from any such common source of supply, may take therefrom only such proportion of all crude oil that may be produced therefrom without waste, as the potential production of the well or wells of any such operator bears to the total potential production of such common source of supply, having due regard to the acreage drained by each well. Any purchaser of crude petroleum from any such common source of supply covered by this section shall be bound by the provisions hereof; and, where ratable taking shall be imposed under the conditions of this section, the production of crude petroleum owned or controlled either directly or indirectly by any such purchaser, shall be subject to the order for ratable taking in the same manner and to the same extent as the production of any operator owning producing properties in said common source of supply. The commission is hereby authorized to so regulate the taking of crude petroleum from any or all of the common sources of supply in this state as to prevent the inequitable or unfair taking from a common source of supply by any person, firm or corporation, and to prevent unreasonable discrimination in favor of any such common source of supply as against another.

Prevention of Waste Caused by Unnecessary Drilling

If and when the commission shall make an order, rule or regulation to prevent waste incident to excess production, it shall have the further power to prohibit the drilling of any unnecessary wells in this state, such prohibition, however, to be limited to the period of four months from the making of said order. The term "necessary well" as applied to a developed pool shall include the following types of wells and no other: (A) wells that must be drilled to prevent expiration of fixed term of leases; (B) wells that should be drilled to protect the owner against the loss of gas energy of the pool where the lease or leases are situate, provided, that in allowing the drilling of wells of this character, it shall clearly appear from the evidence that the owner of the particular lease will suffer an unreasonable loss of gas energy during the period prohibiting the drilling set forth in the order of the commission.

No order of the commission shall prohibit the drilling of wildcat wells where the following conditions obtain: (1) where the operator proposing to drill shall own the lease on the tract to be drilled and also shall own leases upon a reasonable amount of acreage surrounding the location of the proposed well. (2) where the lease to be drilled and a reasonable amount of acreage surrounding the same shall have been unified for the purpose of development and operation.

Certificate of Compliance With Conservation Laws

No oil well shall be permanently connected with a pipe line until the owner or operator of such well shall have secured from the commission a certificate of compliance with the conservation laws of the state.

Extension of Pipe Lines

No common carrier of oil shall extend a pipe line more than two miles except after obtaining a certificate from the commission that such extensions would not cause, or contribute to, waste.

Proposed Texas Law Makes Commission More Forceful

Austin, Texas.—During the concluding session of the oil states' advisory committee held here May 5, a bill was read, which had been framed for presentation to the Texas legislature by J. D. Collett, C. F. Roeser and E. A. Landreth.

This bill would give the Texas Railroad Commission the power to limit oil production to market requirements, prevent underground waste and unequal withdrawals, and require the shutting in of gas wells within five days of getting production, to remain shut in until the gas production could be used for light, fuel, power or repressuring.

The bill would also accord precedence to court actions in connection with injunction proceedings to prevent long drawn out delays in obtaining decisions. In case of appeal, the Appelate Court must act on this at once; and its decision is final. Any excess oil produced by the operator acting under this injunction must be equalized by withdrawals smaller than those of adjoining leaseholders subsequent to court action favorable to the commission; and subsequent purchasers of the lease in question are then subject to this penalty.

This bill does not affect the common purchaser law.

Extensive Plans Made for National Oil Scouts Meet

Dallas, Texas.—A good time is in store for members of the National Oil Scouts Association of America when the eighth annual convention is held here May 11 and 12, as the local arrangements committee has been working for more than a month in preparing a program that is certain to surpass all previous conventions of the organization. The Adolphus Hotel has been designated convention headquarters, and the opening business session will be held at 11 a. m. May 11.

A number of papers have been prepared by scouts to be delivered at the business session the following afternoon and on the morning of the second day. Election of officers will take place at this latter session.

Dallas business men will be host to the visitors with a stag smoker on the night of May 11. The annual golf tournament will be held on the afternoon of May 12. A dinner dance is to be the closing event on the program. Special consideration is to be given the wives of the membership, with a style show, theater and bridge parties arranged for.

The arrangements committee consists of: J. W. Sleby, John G. "Jack" Pew, R. B. Whitehead, J. M. Charlton and John H. Langston.

▼ ▼ THE WEEK'S NEWS ▼ ▼

Oil Producers' Agency Names Personnel of Its Directorate

Los Angeles.—Oil Producers' Sales Agency, organized two months ago to find a market for oil produced in California by independent operators, has completed its directorate, the personnel including 21 well known operators. An effort is being made to enroll every independent operator as a member of the organization. Nearly one-half of the allowable production in California is in the hands of independent operators and one of the chief objects of the agency is to protect this output up to the allowable as set up by the umpires.

The board of directors recently elected includes: Ralph B. Lloyd, independent operator, president; and R. A. Broomfield, Barnsdall Oil Company; A. T. Jergins, Jergins Trust; William Keck, Superior Oil Company; H. A. Bardeen, Bardeen Petroleum Corporation; Lionel Barneson, Bankline Oil Company; C. P. Watson, Milham Exploration Company; William Guyse, Italo Petroleum Corporation; H. C. Dunbar, Twin Bell Syndicate; A. Wardman, independent operator; Jack Doyle, Doyle-Clune Oil Company; R. R. Templeton, Pacific Western Oil Company; Alphonzo Bell, royalty owner; Rush Blodgett, George F. Getty, Inc.; Neil Anderson, Long Beach umpire; C. C. Spicer, Republic Petroleum Company; S. B. Mosher, Signal Oil & Gas Company; Ralph M. Smith, Ventura Land and Water Company; I. H. Sample, Guiberson Oil & Investment Company; Joseph B. Dabney, Dabney-Johnston Oil Corporation, and Davis Burke, independent operator.

Shell Interests May Operate Ships in U. S. Coastwise Trade

Washington, D. C.—Shipping Board officials are seeking confirmation of persistent reports that the Royal Dutch and affiliated Shell Union Oil interests, British controlled, are about to put into effect a plan whereby they may operate tankers in the American coastwise trade preparatory to taking appropriate action under provisions of the shipping act of 1916.

These unconfirmed reports reaching the Shipping Board allege that the Shell group has devised a plan contemplating the sale to an American company of tankers built in the United States by these oil interests, but which have been under foreign registry since their completion shortly after the war.

As these companies are alien controlled, it is pointed out in the reports, they have been unable in the past to engage in the American coastwise trade and have been compelled to fulfill their tonnage requirements by chartering tankers from American owners for their port-to-port business in the United States.

Therefore, it is added, the reported pending plan will be watched with great interest by American ship owners, for if it succeeds, they are said to fear a breakdown of the coastwise trade which is restricted to American owners.

American built tankers, such as those now owned by the Shell interests, are eligible for the coastwise trade if owned by an American company, within certain restrictions. In the meager reports reaching the Shipping Board, it is contended that concurrently with the selling of these tankers by Shell interests back to American concerns, they are to be chartered to the Shell interests for handling their oil from California and the Gulf Coast to the North Atlantic.

Gulf Denies Negotiations to Acquire Shell Units

Pittsburgh.—Gulf Refining Company is not negotiating for the American holdings of the Royal Dutch Shell. The departure for Europe of G. R. Nutty, president of the Gulf Refining Company and vice president of Gulf Oil Corporation, on May 8, is not directly or indirectly connected with any such negotiations. Such a purchase on the part of Gulf Refining Company is not being and has never been discussed. There is no desire on the part of Gulf Refining Company to acquire the American holdings of the Royal Dutch Shell, and, as far as Mr. Nutty knows, there is no desire on the part of Royal Dutch Shell to dispose of its properties and business in the United States.

"I am leaving for Europe on May 8," said Mr. Nutty. "It is my annual trip and is connected only with the present European holdings of Gulf Oil Corporation and its immediate subsidiaries. I will be accompanied by W. J. Guthrie, secretary of Gulf Refining Company, who has accompanied me for years. The rumor that we have ever, are now, or may at some future date enter into negotiations for the Shell properties in the United States is absolutely unfounded. We have done everything we can to stamp it out, even to the point demanding and securing retractions wherever to our knowledge it has been published. But the rumor still persists. You may say for me that there is absolutely nothing to it."

Operators Royalty Purchases Century Petroleum Company

Tulsa.—Sale of the holdings of Century Petroleum Company in the Oklahoma City field to Operators Royalty and Producing Company of Tulsa was completed May 1. Century Petroleum Company is in receivership, which the buying concern will try to end.

The company has five producing wells in the Oklahoma City field, one refining plant at Oklahoma City and another at Tulsa.

Officials of Operators Royalty and Producing Company are Ray M. Dunnett, president; John M. Wheeler, secretary-treasurer and Stephen V. Nelson, W. J. Doherty, E. F. Hamm, William Dulaney II, Harry A. May and W. E. Disney, directors.

Opposition Develops Against Proposed Pipe Line Rate Cut

Fort Worth, Texas.—Opposition is to be made by other pipe line companies and railroads to the petition recently made by Humble Pipe Line Company to the Interstate Commerce Commission for permission to reduce pipe line rates about 20 per cent from most of the fields served by its lines in Texas and New Mexico, except East Texas and some Gulf Coast areas. The Washington rate making body turned down the company's plea April 30 for permission to cut rates on one-day notice, denying that an emergency existed and that the 30-day legal notice rule should be suspended. A new plea is to be made to conform to the rules of the commission, and in the meantime other carriers are preparing to protest.

Public announcement of intentions to reduce crude oil transportation rates was made by Humble Pipe Line Company on

April 21 when Humble Oil & Refining Company posted crude price reductions in nearly all fields slated to receive lower rates. These price cuts amounted to almost the figure involved in the proposed tariff reductions.

Oil Equipment Export Group Chooses Permanent Officers

Los Angeles.—The following permanent officers have been elected for one year by the recently organized Oil Equipment Export Association of Los Angeles: President, W. R. Martin, Martin-Decker Corporation; first vice president, T. Sutter, Baker Oil Tools, Incorporated; second vice president, John Grant, Grant Oil Tool Company; and secretary-treasurer, L. C. Harbert, J. P. Ratigan Company.

Membership committee: B. A. Cleveland, chairman; L. C. Harbert and S. R. Bowen.

Program committee: C. H. Spotts, chairman; E. H. Adams and John Grant.

By-laws committee: S. R. Bowen, chairman; C. H. Spotts and A. S. McIntyre.

The association has as its purpose the development of closer relations with export purchasers of equipment, etc.

At the present time the association includes only California manufacturers, but it is possible that it may extend to other sections of the United States. It is hoped through the association to develop a closer contact with foreign visitors in the United States and to facilitate dealings between American manufacturers and their export customers.

Louisiana-Arkansas Refiners Hold Second Annual Meeting

Shreveport.—The second annual meeting of the Louisiana-Arkansas Refiners Association was held at Shreveport April 28 with a good percentage of members of the association present.

Officers for the ensuing year unanimously elected were: president, Colonel T. H. Barton, Lion Oil Refining Company, El Dorado, Arkansas; first vice-president, D. P. Hamilton, Root Refining Company, Shreveport; second vice-president, C. M. Lamason, Louisiana Oil Refining Corporation, Shreveport; treasurer, Joseph F. Atkins, Spartan Refining Company, Shreveport; secretary, Leon C. Grosjean, Shreveport.

The board of directors consists of the following: B. P. Crittenden, Louisiana Oil Refining Corporation, Shreveport; T. H. Barton, D. P. Hamilton, B. H. Gray, Spartan Refining Company, Shreveport; J. H. Riedemann, Crystal Oil Refining Corporation, Shreveport; J. E. Shatford, Ouachita Valley Refining Company, El Dorado, Arkansas; De Ralph Frizzel, McMillan Petroleum Corporation, El Dorado, Arkansas; W. B. Hassett, Kettle Creek Refining Company, El Dorado, Arkansas; W. E. Winship, Chalmette Petroleum Corporation, New Orleans, Louisiana; F. R. Schneider, Simms Oil Company, Dallas, Texas; George H. Hartung, Houston Oil Company, Camden, Arkansas.

Executive committee: J. H. Riedmann, chairman; T. M. Martin, W. E. Winship, B. H. Gray and D. P. Hamilton.

Manufacturing committee: B. P. Crittenden, chairman; R. T. Colquette, and J. J. Allinson.

Finance and budget committee: C. M. Lamason, chairman; J. H. Riedemann, H. Canon. The budget for the ensuing year will be the same as for last year. Treasurer Atkins' report which showed the association in a healthy financial condition, was read and accepted.

Mr. Crittenden and Howard Bennette discussed the two economic committee reports as made at the mid-year meeting of the American Petroleum Institute's division of refining recently held at St. Louis.

Government to Open Bids On North Dome Royalty Oil

Washington, D. C.—Bids for the purchase of crude oil and wet or casinghead gas accruing as royalty to the government from lands in the North Dome, Kettleman Hills field, California, which are to be opened by the Interior Department June 1, will cover a period of five years, according to plans of the department, bids being asked for periods beginning July 1, next, and ending on March 31 of each year from 1932 to 1936.

As of April 15, last, according to the department's records, Kettleman Hills royalty was accruing from two wells at the rate of 280 barrels of oil a day with gravity of approximately 60 degrees A. P. I. testing nearly 90 per cent gasoline, and at the rate of about 15,000,000 cubic feet of wet gas from which about 1.2 gallons of natural gas per 1000 cubic feet is being recovered.

The lands to be covered by the leases are now being operated as a unit by the Kettleman North Dome Association, and contracts for purchases of royalty oil and gas will be subject to the provisions of that agreement. The association is now drilling six wells in the productive formation from which it is anticipated the government's royalty will exceed 2870 barrels per day, and it is anticipated that as these wells come into production the two wells now producing will be plugged or otherwise closed in.

There is possible, therefore, it is pointed out by the department, wide variations in the quantity and quality of royalty oil and gas accruing to the United States and subject to sale. The government does not guarantee the availability of specific quantities or qualities but proposes to dispose at this sale of all its royalty oil and wet gas from the North Dome, whatever the quantity and quality thereof may be.

Geologists Meeting Goes to Oklahoma City in 1932

Tulsa.—The 1932 convention of the American Association of Petroleum Geologists will be held in Oklahoma City, March 17, 18 and 19. The executive council met here May 4 and accepted the Oklahoma City invitation tendered at the San Antonio meeting. L. P. Garrett, president, Houston; vice-presidents, F. H. Lahee, Dallas, and Frank C. Clark, Tulsa, and Sidney Powers, past president, attended the council meeting.

New York City.—The next meeting of the board of directors of the American Petroleum Institute will be held June 5, in the Texas hotel, Fort Worth, Texas. This meeting will follow closely the first mid-year meeting of the Institute's division of production, scheduled for the Baker hotel, Dallas, June 4.

Personal Mention—Men You Know

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W. P. Sutton has resigned as superintendent of production for Indian Territory Illuminating Oil Company. Sutton has had charge of the work of the company in the Oklahoma City field, since the discovery well was started. He came to Oklahoma City from the Seminole area. John Lawry has been named superintendent of the north end of the pool for the company and Clyde O. DeVerse is superintendent in the south part of the pool.

A. S. McIntyre, president and general manager, Calmec Company, Los Angeles, left California April 25 in his car to visit most of the important oil field centers of the Mid-Continent. He may visit Canada before returning home.

E. B. Wiggins, Wiggins Oil Tool Company, Los Angeles, left his headquarters April 26 for a business trip to New York. En route home he will visit several points in the Mid-Continent.

E. L. Decker of Martin Decker Corporation, Long Beach California, departed May 2 in the Martin Decker plane for points in the Mid-Continent. Mostly on a dare, Sam Bowen, president of S. R. Bowen Company, Huntington Beach, California, accompanied Mr. Decker. First stop was El Paso, then Oklahoma City, Tulsa, points in Kansas, then Houston, points in East Texas and later Arkansas and Louisiana.

J. P. Ratigan, owner of J. P. Ratigan Company, Los Angeles, accompanied by L. C. Harbert, sales manager, departed April 18 for a trip over the new East Texas oil fields, with side trips in the Mid-Continent scheduled.

W. D. Shaffer, president, Shaffer Tool works, Brea, California, departed April 28 for Houston, Texas, and will tour the East Texas oil fields before returning home.

Col. Robert W. Stewart, formerly chairman of the board of Standard Oil Company (Indiana), recently visited Los Angeles for a short time during a trip around the world. He expressed the belief that Russia may become a greater factor in world production than ordinarily believed.

Osamu Kasahara of Ogura Oil Company, Ltd., of Japan, is visiting the oil fields of California.

R. A. Broomfield, Jr., has been appointed manager of the land department, Barnsdall Oil Company of California, following work in various capacities with the company. He is a graduate geologist, having finished the course at the University of Southern California.

Alfred D. Bunescu, field superintendent for the "Concordia" Societe Anonyme Roumaine pour L'Industrie du Petrole of the Moreni field in Roumania, is visiting California fields and studying operating methods employed there.

W. L. Todd

W. L. Todd, vice-president in charge of production for Simms Oil Company, Dallas, has resigned effective June 1 to become president and general manager of the Trinity Drilling Company and also head of the Mid-Tex Oil & Gas Company, which is being organized to develop a large number of proven leases in East Texas. Todd has been actively engaged in the drilling and production branch of the oil business in the Southwest for the past 29 years, and with Simms Oil Company since July, 1924. Trinity Drilling Company has seven rotary rigs in operation in East Texas, and also has one completed well, which will be diverted to the new producing company. General offices of the two concerns to be headed by Todd will be located in the Dallas National Bank Building, Dallas, and three Gregg County tests have been started. Blaine Johnston, superintendent for Simms Oil Company, El Dorado, Arkansas, and more recently in East Texas, has been transferred to Dallas to succeed Todd as drilling and production manager.

H. Schols and F. A. Kahlman, geologists for Shell interests in Borneo, are visiting California fields.

Jerry Bowen has been appointed manager of the Bakersfield office and superintendent of the Fruitvale field for Western Gulf Oil Company.

Harry F. Sinclair, chairman of the board, Sinclair Consolidated Oil Corporation, will visit Los Angeles early in May to confer with officials of Rio Grande Oil Company. He is also chairman of the board of the latter company.

G. P. Melville, assistant production manager, and R. N. Scott, field superintendent, Burmah Oil Company, Ltd., Chauk, Upper Burmah, India, are spending a few weeks studying oil field conditions in California and registered at the permanent Oil Equipment and Engineering Exposition.

Rodney Durkee, controller of Standard Oil Company of New York and formerly controller of General Petroleum Corporation, is visiting California and will remain on the West Coast for about two months.

R. A. Broomfield, president, Barnsdall Oil Company of California, left Los Angeles this week for an extended trip through the East.

Ross A. Flatt, sales manager of the truck tire division, Firestone Tire & Rubber Company, Akron, Ohio, accompanied by C. V. Jones, special representative of Houston and J. M. Harris, district sales manager, Dallas, recently made a tour of inspection through the East Texas fields and the Gulf Coast area. Flatt visited the important fields of the upper Mid-Continent en route to Texas.

G. E. "Gene" Sweeney, field superintendent for Sun Oil Company in the Howard-Glasscock County district, with headquarters at Big Spring, Texas, has been transferred to East Texas to take charge of field operations of the company in Gregg County.

Dewey C. Mong, drilling superintendent for Colon Oil Corporation (Royal Dutch-Shell), is on holiday at Long Beach, California, after a tour of duty in the Rio Tarra Fields south of Maracaibo Lake in Venezuela.

Oklahoma--Kansas Field Notes

FLOYD SWINDELL, ***Staff Representative, Tulsa, Oklahoma***

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Ritz-Decker-Garrett Pool Extended 1½ Miles South

Wichita, Kansas.—News from the Ritz-Decker-Garrett area of McPherson County was both good and bad during the past week when one well on the southeast end of the trend apparently extended Viola lime production more than 1½ miles southward and a test on the northwest end encountered water and is being abandoned after testing the Siliceous lime. Location of the Viola lime structure was further defined when a test on the east side of the area encountered a small amount of oil with water showing. Despite the handicap of recent dry holes within the prospective area this district continues to lead the state in total number of operations.

E. F. Jones et al encountered Viola lime at 3406 feet in their Peterson 1, NW SW SW Section 7-20s-1w, on the extreme southeast end of the Ritz pool and within a half mile of Helmrick, Payne et al's Boesker 1, which was dry at 3485 feet. The new well was last reported with a hole full of oil and only a few inches of the producing formation had been penetrated. Top of the Viola is 16 feet lower than in the Derby and Empire's Domsch 1, NE NE NW Section 6-20s-1w, nearest producer in the lower zone and 17 feet higher than in the Helmrick and Payne, Boesker 1. Maddison and Shell Petroleum Corporation have abandoned their Peterson 1, SE SW Section 1-9s-2w, on the northeast limb of the Decker gas structure after testing chat, Viola and Siliceous limes and finding nothing but water below the chat. This test and its east offset, Maddison and Shell Petroleum Corporation's Russell 1, both found water in the chat, having encountered top of that formation at minus 1383 and minus 1382 feet, respectively, about 19 feet structurally lower than the nearest chat producer. Present information would lead to the belief that the oil-water contact on the northeast and southwest limbs of the Decker structure will not be far above or below the 2950 subsurface contour or the 1390 sub-sea contour.

Beard Drilling Company and Tidal Oil Company have underreamed and set five-inch casing on top of the Wilcox sand after getting a hole full of water with 300 feet of oil in the hole from Viola lime topped at 3419 feet in their Day 1, CSW NW SW Section 32-19s-1w. Operators plan on testing the Siliceous lime and if unsuccessful in that formation, will plug back to Viola lime and test. Should this formation fail to show commercial value the well can be made into a small gasser in chat at 2951 to 2958 feet. All indications were favorable for commercial production in the Viola lime until six feet of that formation had been penetrated. At 3425 feet water began showing and continued drilling resulted in a hole full of water. The test is located approximately on a northwest-southeast line projected through the discovery well in the Garrett pool and less than 1½ miles southeast of it. It is structurally the same height as the discovery well and only four feet lower than the Derby and Empire Domsch 1.

Miller and Shell Petroleum Corporation's Blair 1, NW NW NW of the same section, is recementing five-inch casing after plugging back from the Wilcox sand zone where a show of oil and water was encountered at 3473 to 3474 feet. The well was plugged back to 3458 feet and shot with 40 quarts in Viola lime at 3435 to 3455 feet. Three hours after the shot oil was standing 2750 feet from bottom. A second shot of 100 quarts at 3433 to 3461 feet apparently loosened the five-inch casing and water broke in. Syndicate Oil Company and Shell Petroleum Corporation are straight reaming for six-inch casing in their Becker 1, SE SE SE Section 36-19s-2w, in the northern portion of the Ritz pool. Top of the chat was encountered at 2926 feet and an estimated 2,500,000 gas at 2955 feet. At 2990 feet a show of oil and water were encountered and operators decided to set the six-inch casing down and test the Viola lime.

United Petroleum Company and Sinclair Oil & Gas Company's Lacquement 1, NE NW SE Section 20-19s-1w, has been gauged at 47,000,000 cubic feet making it the largest gas well in the area. It is located approximately one-half mile southwest of the Shell Petroleum Corporation's Kaegi 1, which gauged about 14,500,000. Henderson and Holden were drilling below 3520 feet in their Summerfield 1, CNE SW Section 23-19s-1w, approximately 3½ miles northeast of the Garrett and Ritz pools. All formations in this test have been encountered at depths which indicate its location on a structure which may be separate from the others which are now producing or may be a continuation of the "high" upon which the Shell Petroleum Corporation's Kaegi well is located. Chat was encountered at 2927 to 2943 feet for an estimated yield of 25 barrels of oil and 50 barrels of water. After finding the base of the Mississippi lime at 3154 feet, five-inch casing was set at 3445 feet to shut off a hole full of water in Viola lime at 3417 to 3418 feet. A sand at 3467 to 3472 feet, apparently the Wilcox, yielded a hole full of water.

Two Interesting Tests In Southern Oklahoma

Ardmore, Oklahoma.—The Tatums pool in northwestern Carter County passed its second consecutive week without a completion and activities have settled to two wells drilling and one rigging up rotary tool. Amos Drilling Company and Walter H. Gant are drilling below 2105 feet in oil sand topped at 1946 feet in their Sparks-Hooks et al 1, SE SE SE Section 13-1s-3w, on the northeast edge of the pool. In the next section west, Lesh and McCall are drilling below 2443 feet in their Carter 2, NE SW SW, on the northwest side of the pool. Carter Oil Company is rigging up tools for its Paul Robb 2, SW SW NW Section 19-1s-2w, on the east edge of production.

Two interesting southern Oklahoma tests got under way during the week. Monarch Petroleum Company is rigging up rotary tools at its Gregg 1, S½ SW SW Section 36-3s-4w, across the Carter County line in Jefferson County and about one mile west of production in the old Healdton field. Drilling will be commenced early in the week according to Abe Kaufman who has a contract. Recent tests in the edge of and around the Healdton pool indicate the existence of shallow saturated sands far out from the known structure and operators who have long studied conditions in this most complicated area feel that something of importance eventually will be found. Holmes et al are drilling below 100 feet in their Flannagan 1, NW NW Section 2-8s-1e, Love County wildcat located about four miles southwest of the town of Marietta. It is about two

miles northwest of the Gilcrease Oil Company's Burkhart 1 which was abandoned as dry after drilling to 2513 feet. Batson, Starritt and Autry cored hard rock at 350 feet in their Dr. Autry 2, SE NE Section 27-6s-2e, Love County test about seven miles northeast of Marietta. Dr. Autry 1, NW NW NW Section 26-6s-2e, was abandoned by the same operators at a total depth of 525 feet after testing the lower part of the Cretaceous series.

Mid-Kansas Oil & Gas Company is making a real deep test of its Preston-Culp 6, NW NE NE Section 6-5n-9w, in the western portion of the Cement pool in Caddo County. At last report it was being drilled below 6740 feet having established the record of being the deepest test for this part of the state when several hundred feet shallower. No showings have been encountered since the drill penetrated hard sand showing oil at 6068 to 6077 feet. Magnolia Petroleum Company is drilling below 3725 feet in its Estes 2, SE SW NE Section 10-5n-9w. A show of gas was encountered at 3585 feet and coring was continued to below 3600 feet.

Russell County Wildcat Has Interesting Showing

Russell, Kansas.—Stearns-Streeter and J. J. Hall report favorable showings of oil and gas in their Mills 1, SE SW SE Section 30-14s-13w, Russell County wildcat located approximately seven miles southeast of here. The latest showing was encountered at 2630 to 2639 feet. Sands at 1880, 2285, 2306, and 2355 have revealed showings of gas and a sand at 2560 to 2567 feet showed oil. Sands in the series lying between 1880 feet and 2639 feet seem to correlate with the Council Grove formation of lower Permian and the Waubansee and Shawnee formations of upper Pennsylvanian as determined in the next township south by M. N. Bramlette in Bulletin 10 of the Kansas Geological Survey. The test is situated between two large blocks held by Empire Oil & Refining Company and in an area where checker-board acreage has been blocked by Prairie Oil & Gas Company, Mid-Kansas Oil & Gas Company, Skelly Oil Company, Midwest Exploration Company, Shell Petroleum Corporation, and Stearns-Streeter.

Complete Two Producers In West Chandler Field

Tulsa.—Two producers were completed in the West Chandler pool during the past week. Coline Oil Company's Telford 2, SW NW SE Section 7-14n-4e, had the Simpson sand at 4980 to 4987 feet from which it flowed 940 barrels the first 5½ hours and 3913 barrels during the first 24-hour period. T. B. Slick Estate's Kentzelman 2, SE SE SW Section 7-14n-4e, logged Simpson at 4975 to 5085 feet and swabbed only 595 barrels the first 24 hours. Shot with 20 quarts on bottom it flowed 360 barrels in 10 hours. Magnolia Petroleum Company's Wagner 1, NW NW NE Section 19-14n-4e, drilled the eight-inch plug at 4891 feet where water broke in and a string of six-inch casing will be run; total depth is 4906 feet. The same company's Telford 2, SW SE Section 7-14n-4e, is the next well due for completion. When last reported it was ready to cement nine-inch casing at 4990 feet, nine feet below the top of the Viola lime. Telford 1, SW SW SE, of the same section was drilling at 4430 feet.

White Eagle Buys Interest In Eastborough, Kansas, Pool

Wichita, Kansas.—Rumors prevailing here during the past week were to the effect that Magnolia Petroleum Company, through its subsidiary White Eagle Oil & Refining Company, had purchased the interests of Fisher and Lauck in the Eastborough pool in Sedgwick County. Although the local offices denied knowledge of such a transaction, the fact that Fisher and Lauck had announced withdrawal from their connection with Golden Rule Refining Company and the further announcement that White Eagle Oil & Refining Company would run all production from their 240 acres of leases were scouted as partial confirmation of the rumored sale. Golden Rule Refining Company has been running from 2000 to 8000 barrels daily from the properties since last summer when operators in the Eastborough pool were having difficulty in finding an outlet. Derby Oil Company has announced location for its Eastborough Estates 5, in the platted sector of Section 19-27s-2e.

Three Seminole Area Tests Are Watched With Interest

Seminole, Oklahoma.—Three tests in the Seminole district are being watched with interest. Burgher Oil Company's (Gwin Drilling Company) Earlsboro 1, NE SE NW Section 33-9n-6e, between the Seminole City pool and the 29-9n-6e area, topped the Viola lime at 4170 feet and Simpson formation at 4212 feet. Drill pipe twisted off at 4246 feet in the Simpson formation and at the time of last report a fishing job was in progress. Magnolia Petroleum Company's Powell 1, NW SW SE Section 15-6n-7e, two miles west of Sasakwa, encountered top of the Woodford shale at 4141 feet and was drilling at 4190 feet. The same operator's Harris 1, CNW NW SW Section 6-6n-4e, between the Asher pool and the Pearson Switch area, had top of the Simpson dense at 4250 feet, Simpson dolomite at 4290 feet, and cored sand at 4367 to 4380 feet with no oil showing. It is drilling below 4420 feet.

In the Wewoka townsite pool Burke-Greis Oil Company had Cromwell sand from 3204 to 3239 feet and drilled to 3305 feet. The hole was plugged back to 3070 feet where a collar was ripped and the casing pulled up. A 40-quart shot between 3045 and 3070 feet resulted in an initial flow of 432 barrels.

Droppleman et al topped the Hunton lime at 4650 feet and cored a show of heavy oil at 4675 to 4695 feet in their Jones 1, SE NW Section 21-8n-3e, Pottawatomie County wildcat a short distance northeast of Macomb.

Empire Oil & Refining Company is digging cellar for its Johnson 1, CSW SW Section 17-7n-8e, approximately two miles south of the old Wewoka pool in Hughes County.

New York City.—Contribution by the American Petroleum Institute of $1000 each year for three years for support of research in the effect of temperatures on the properties of metals has been approved by the Institute's executive committee. The Institute's contribution will be placed in a fund of $20,000 the American Society of Mechanical Engineers and the American Society for Testing Materials is raising jointly to carry on research at some university or similar laboratory. The work will be directed by the joint A. S. M. E.-A. S. T. M. Research Committee on the Effect of Temperatures on the Properties of Metals.

News From California Fields

BRAD MILLS, ***Staff Representative, Los Angeles, California***

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Recompletion on North Dome Has Big Estimated Potential

Coalinga, Calif.—Recompletion of Petroleum Securities Company's Felix 1 with a new initial flow of 5000 barrels and an estimated potential of from 10,000 to 20,000 barrels was the outstanding development of the week on the North Dome at Kettleman Hills, and apparently paved the way for deepening of other wells now flowing from the top of the Temblor formation. Conservative estimates placed the potential of the well at 15,000 barrels, while a short flow test actually showed a production in excess of 14,000 barrels. In the absence of enough traps to handle the combined production of Felix 1 and Felix 2, both wells were allowed to flow through a trap combination considerably too small to handle the potential production. Combined production of the two wells is 9200 barrels. Both wells were beaned back to meet the capacity of the gas traps.

Felix 1 was originally completed at 7275 feet and produced a scant 1500 barrels from the top of the Temblor formation. The gas-oil ratio was very unsatisfactory and gradually grew worse as production declined to about 260 barrels. The well was deepened to 8110 feet, the 8⅝-inch shutoff having been made prior to the first completion at 6585 feet. Before recompletion, 1625 feet of 5¾-inch liner was run, but of this total only 730 feet was perforated. A packer was set above the perforations to shut off the top of the zone which produces most of the gas. A 5¾-inch flow string was run to 6440 feet and the well is in perfect mechanical condition. The low gas-oil ratio practically proves that the excess gas production may be eliminated by exclusion of the upper part of the Temblor formation.

The first production was about 32 gravity, but the combination flow from the two wells showed a steady increase to 35 gravity. This is in marked contrast to the 61 gravity oil produced from the first completions. The gas flow is less than 12,000,000 cubic feet and far below the limit recently set by the court in an injunction granted against operators now wasting gas on the North Dome.

Felix 1 is located fully one mile north of the axis of the structure and has been considered an edge well. Recompletion of this test makes the field look even more important than it has been considered. At least one other edge well has been completed with a large initial production and there is reason to believe that proper penetration of the lower Temblor on top of the structure will result in 25,000-barrel producers. One edge well has produced as high as 14,000 barrels.

Kettleman Hills was slow to reveal its mysteries, but there is every reason to believe that it will be the great field of the future. Production will be distributed over a long period, but it is doubtful whether the actual output will be held to 50,000 barrels during all of the next two years.

Standard Oil Company is ready to complete No. 7Q-21 at 8091 feet. A 6⅝-inch combination string was landed at 8080 feet, with the 9⅝-inch shutoff over the Temblor zone at 6632 feet. The combination string was cemented through perforations at 7475 feet to shut off the upper gas.

Two or three more wells will be completed during the late spring. The Kettleman North Dome Association is drilling and deepening several wells and should soon have its full allowable.

Superior Oil Company is building the rig for Huffman 3, the third well to be started on this lease. The tallest and heaviest steel derrick ever built is being erected for this test. It will be 175 feet tall from the level of the derrick floor, and will allow the pulling of an extra stand of drill pipe. The company's Huffman 2 is producing more than 11,000 barrels of oil and about 18,000,000 cubic feet of gas from 8323 feet. It was the first well to show the wisdom of shutting off the top gas and the first to obtain a low gas-oil ratio. The company's Huffman 2 has established a speed record for the field, having reached the Temblor zone at about 7000 feet before the average well would have passed 5000 feet. A string of 9⅝-inch casing was cemented at 6990 feet and the well has reached a depth of nearly 8000 feet in remarkable time.

Shell Oil Company will complete Dixon 1 within a few weeks, barring mechanical difficulties and possibility that certain fee wells will not be finished during the year. A string of 9⅝-inch casing was cemented at 7260 feet and the well is now drilling around 8100 feet. This test is located on the northeast flank but should be a good producer. It is one of a long line of wells being drilled across the southern base of Section 35- and 36-21-17.

North American Consolidated Oil Company is drilling at 7300 feet in Blauvelt 1, in which the record string of 13⅜-inch casing was recently cemented at 6763 feet. Although an edge well, this test stands a good chance at commercial production in the Temblor formation.

Standard Oil Company is drilling several offsets to both fee and association wells, besides offsetting Petroleum Securities Company on the Middle Dome. This company has eight active wells.

California's Deepest Well Is Completed at Ventura Avenue

Ventura, Calif.—With the completion of Lloyd 57 at 8823 feet, Associated Oil Company has established a new California depth record for commercial production, the latest Ventura Avenue well exceeding the depth of the former record by a wide margin. Initial production was above 5000 barrels of 30 gravity, the flow showing a cut of five per cent. A string of nine-inch casing was cemented at 7139 feet and a five-inch perforated liner run from near the shoe of the nine-inch to bottom. It was the original intention to cement a smaller string of casing at about 8100 feet to shut off streaks of questionable sand found between 7200 feet and 8100 feet, but a decision was reached to include the full formation below the nine-inch string in the production test.

The company intended to drill deeper in Lloyd 57, but the gas pressure made pulling of cores a slow and tedious task at such a depth. The last core was pulled only after circulating heavy mud for several days. Despite the high gas pressure, the gas-oil ratio is very satisfactory. Gas production is less than 5,000,000 cubic feet. The well is flowing through a 65/64-

inch bean, with a tubing pressure of 475 pounds and casing pressure of 925 pounds.

Completion of this record well places a new value on the Ventura Avenue field. Production is coming from the lower Pico of the lower Pliocene. An unusual feature of the well is the fact that the formation from top to bottom falls in the same age. The Miocene is yet to be tapped and there is reason to believe that this formation will prove productive. The Ventura Avenue field is located in the Ventura basin, where possible oil-bearing formations are estimated to be 20,000 feet thick. Various formations have been deposited with remarkable conformity and production from below 10,000 feet will not be a surprise.

Lloyd 57 is located high enough on structure and is straight enough to eliminate the possibility that it is flowing entirely from levels previously touched. It is on a large lease but indicates a similar production in other parts of the field. Streaks of questionable gray sand were cut below the nine-inch shutoff and the intention was to run a smaller string of casing to a point below 8000 feet. Since the water cut in completions finished between 7000 and 8000 feet was not unusually high, the well was completed with 1711 feet of five-inch perforated liner. The first production showed a cut of 12 per cent but the well cleaned up to seven per cent and gravity of the oil increased to 30.2 degrees. Actual production during the first 24 hours was 5282 barrels. Casing pressure increased to 1200 pounds with a 68/64-inch bean.

The Ventura Avenue field is largely controlled by Associated Oil Company and Shell Oil Company and has been conservatively developed over a period of several years. First production of importance was found between 4000 and 5000 feet and Shell Oil Company is still completing shallow wells satisfactorily. Production was gradually increased and average depth of wells increased steadily until 1929. During the past two years, the 7000-7600-foot level has been the favorite finishing point. Completion of Lloyd 57 will result in the development of the portion of the lower Pliocene. The drilling program will be conservative, as in the case of the higher levels.

Bakersfield, Calif. — Shell Oil Company will not drill deeper in Porter-Day 1, deep test in the Weed Patch field, and is bridging the hole to run a string of 4¾-inch casing to 7955 feet. The well was drilled to 8420 feet, but the best showings were found within 200 feet of the cementing point. The first test probably will include only a few feet below the shoe of the last string. The last cores showed shale and hard sand which responded faintly with cuts. Porter-Day 1 was the discovery well in the Weed Patch field, flowing about 1100 barrels from around 5900 feet. The shut-off was made for this production test with 8⅝-inch at 5789 feet. The oil was about 23 gravity but showed a much better gasoline content than that found in such fields as Kern Front and Fruitvale.

Hanford, Calif.—The injunction against North Dome operators at Kettleman Hills has been changed to allow a maximum gas waste of 10 per cent of the total produced during the month, where outlets are not sufficient to reduce the amount blown to the air. The waste during any one week may be as high as 15 per cent but the total for the month must not exceed 10 per cent. The original injunction did not provide for any waste, but hinted that some tolerance might be granted. Recently a five per cent tolerance was granted, but this proved to be inadequate for Standard Oil Company, due to variable demands for gas and the necessity for producing the wells uniformly. A tolerance of 20 per cent was requested, but the state would agree only to a waste of 10 per cent of the total produced.

Fail to Make Good Producer Of North Belridge Deep Test

Bakersfield, Calif.—Union Oil Company has been unable to make a satisfactory producer of Belridge 17, a deep test in the North Belridge field, and will kill the well and run a packer on the tubing in another effort to raise production. This well was originally tested in the Temblor at 5540 feet and flowed for a time at the rate of 1000 barrels. Production declined rapidly, however, and more hole was made in an effort to increase the flow. It required drilling only to 5600 feet to open up a flow of salt water. The well was immediately plugged back to 5540 feet, since it was evident that the first open hole test included the proper part of the formation.

Setting of the plug was partially effective, but the well responded with a feeble flow. The oil is 37 gravity and shows a negligible cut. This is a much heavier product than obtained from the discovery well.

Reward Oil Company cemented a string of 11¾-inch casing over the Temblor formation at 5000 feet in Associated 4, and should complete the well within a few weeks. This test is the most promising drilled since the deep zone was discovered and is checking only eight feet lower on structure than the original producer. The Temblor formation will produce over a very narrow area at best, but may extend farther to the west than the east, with the surface as a basis for comparison.

Plan Production Test for Deep Well at Seal Beach

Los Angeles.—Contrary to press reports, Continental Oil Company has not yet established a new world record in McGrath-Selover 24, a deep test in the Seal Beach field which was drilled to 9054 feet. The well was cleaned out to 8130 feet to test the 6⅝-inch shutoff at 8122 feet, but flowed only a small amount of mud, oil and water during the preliminary test. The hole will be cleaned out to bottom for an official production test.

Should the well produce satisfactorily, it will be the deepest producer in the world. The water shutoff is one of the deepest effected in the Los Angeles basin. The formation below the 6⅝-inch casing showed oil and gas and the well stands a good chance of becoming the record producer.

The main part of the Seal Beach field is controlled by Standard Oil Company, Associated Oil Company and Continental Oil Company, while the townlot district is largely held by small operators. Even a good well at 9054 feet should not cause a rush to drill in a field which was developed at a loss to many operators.

Ventura, Calif.—Chanslor-Canfield Midway Oil Company is within striking distance of a new world record in Hobson A-2, a wildcat test about two miles east of the Rincon field, having passed a depth of 9450 feet. The formation is running to a tough brown shale and is more promising than wells drilled below 9000 feet in Kern County. Only two wells have reached greater depths. They are Standard Oil Company's Mascot 1, which is now standing idle in the Midway district at 9629 feet, and Shell Oil Company's Williams 1, a test near Semitropic which holds the record at 9700 feet. Hobson A-2 was started with the hope that production would be obtained at some level above 5000 feet. At 7479 feet a small production was developed on the compressor, but decision to try still deeper levels was reached. Thin streaks of oil sand have been cut at various levels below 7000 feet, but nothing of promise has been found below 7500 feet. The present formation indicates that an oil sand at some greater depth is possible.

East Central Texas Field Notes

H. H. KING, ***Staff Representative, Fort Worth, Texas***

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Salt Water Spread Aids Proration In East Texas

Tyler, Texas.—Rapid spread of salt water into the most prolific leases in the Kilgore field has been more influential in obtaining almost unanimous support for proration enforcement than any single factor. The water situation was reaching serious proportions when leading operators in this area voluntarily reduced the flow of their wells to about 700 barrels daily beginning April 27, and the application of proration restrictions May 1 has further reduced the individual well output, except in instances where operators have been slow in complying with the order.

Salt water encroachment is a permanent evil to be dealt with from now on in operating completed wells on the west side of the Kilgore field. It first became known April 10, and by the end of the month more than a score of wells had begun showing water in such quantities that owners have deemed it advisable to plug back the holes and draw from only a few feet of the Woodbine sand formation rather than to aggravate the situation. The plugging back process is now under way, but it is doubtful if all water can be eliminated from the production of these wells.

Kilgore field came through with its usual heavy quota of completed wells, with heavy producers predominating during the past week, and several minor extensions. The south end of this field was widened about 1¾ miles to the southeast when Turner & Swift's S. C. Sanders 1, Thos. J. Martin Survey, cored oil sand at 3755-72 feet, with a surface elevation of 550 feet. A big producer is expected from this outpost test, which has been drilled to a minus depth of 3222 feet.

Open flow gauges of wells upon completion have been discontinued by many operators in the interest of conservation of gas, and to avoid the risk of pulling in bottom hole water. Since proration quotas are determined only by flowing wells through 2½-inch tubing and 11/16-inch choke, there is no longer any incentive to throw the valves open.

EAST TEXAS OPERATIONS

Expansion of field work in Rusk and Gregg Counties since the area reached important proportions is illustrated by the table below, showing operations on given dates:

DATE	*Locations*	*Derricks and Rigs*	*Active Tests*	*Totals*
February 9	*10*	*34*	*34*	*83*
February 16	*21*	*48*	*54*	*123*
February 23	*23*	*71*	*70*	*164*
March 2	*22*	*97*	*84*	*203*
March 9	*21*	*129*	*104*	*254*
March 16	*21*	*128*	*136*	*285*
March 23	*27*	*136*	*194*	*357*
March 30	*22*	*141*	*222*	*385*
April 6	*24*	*134*	*231*	*389*
April 13	*40*	*154*	*223*	*417*
April 20	*49*	*155*	*231*	*435*
April 27	*56*	*135*	*259*	*450*
May 4	*59*	*143*	*240*	*442*

Joiner Field Extended 1½ Miles to Southeast

Tyler, Texas.—Another extension to the south for the Joiner field became assured during the past week when Sinclair Oil & Gas Company's W. D. Kinney 1 topped the oil saturated sand at 3667 feet. This test is located about 1½ miles southeast of the nearest production, and was in process of completion early this week. Pecan chalk was topped at 2693-3050 feet, and first Austin chalk at 3522 feet. This well provided the necessary mileage to give the Joiner-Kilgore and Longview areas a maximum length of 33 miles in a southwest to northeast direction, without a break in the production trend along this stretch, although the east and west flanks promise to be ragged.

The greatest width along this stretch that has been definitely proven for production is in the Longview section, and south of the Texas & Pacific Railroad. There is a six-mile east and west stretch between outpost production, with the west end open for further extensions.

New field work in the Joiner area is shifting to a north and south trend parallel to the Smith-Rusk County line, with ample acreage outlined by production to permit the drilling of many hundred wells. During the early stages of development this section of the field was not so popular with large companies, and small operators loaded up with cheap leases. The latter have negotiated a number of deals lately, involving drilling tests, or completed wells. Tidal Oil Company has been active in making such purchases.

Potential of 44 Wells at Longview 500,000 Barrels

Longview, Texas.—Open-flow potential production of the 44 completed wells in the Longview field at the close of April is estimated at more than 500,000 barrels daily, since these wells registered a combined daily potential of 100,408 barrels flowing through 2½-inch tubing and 11/16-inch choke on same. Proration enforcement was again put into effect 7 a. m. May 1, with the field allowance placed at 34,993 barrels daily during the following 15-day period. An unsuccessful attempt was made to prorate the field to 30,000 barrels daily April 23, but abandoned within 24 hours. Some of the operators were slow in pinching back their wells at the start of the new proration period, and early this week only a few concerns had failed to abide by the Texas Railroad Commission's production restriction order.

Extension of the flush oil producing area of the Longview field 2¾ miles due north was accomplished last week when E. E. Eslick-Little et al's W. R. Nicholson 1 flowed at rate of more than 10,000 barrels of oil daily from sand at 3659-76 feet. This well is located on a 25-acre lease in the east edge of the Marshall Mann Survey, and one mile northwest of the 3724-foot dry hole completed recently by Mrs. Mamie Hammond et al on the Hamby land. Nicholson 1 was given a proration potential estimate of 2400 barrels daily, and will be allowed to produce under proration 1134 barrels daily. It was carried to a sub-sea depth of 3280 feet. Further extensions to the

north are in store for the field, but will be mostly confined to Upsher County.

No water has appeared in completed wells in the Longview field, although it is producing oil that has unusually high temperature. Oil running as high as 140 degrees temperature has been produced in the original section of the field since early last March without adverse results.

Wildcat Tests Promising in East Texas Border Counties

Shreveport.—Cores taken from two separate wildcat tests in border counties of East Texas late last week are expected to result in casing being set in both for a test.

In the southwestern part of Harrison County, Banner and associates' Lowery 1, W. O. Stanfield Survey, Friday, May 1, cored into a sand identified as Blossom at 2797 feet, with elevation of 312 feet and continued in sand to 2805 feet. Owners of the test said the core showed an oil saturation. It was indicated that casing would be set for a test without making a drill stem test. Pecan Gap in this test was topped at 2060 feet and base of it was reached at 2628 feet.

Sloane Prospecting Company's Windham 1, A. H. English Survey, Shelby County, six miles east of Center, the county seat, took a 17-foot core Sunday, May 3, from 2669 feet which showed traces of oil. A drill stem test probably will be made before any casing is set.

Another attempt to find Woodbine sand production in Marion County, Texas, ended in failure during the past week when Eden Oil Company's De Ware 1, R. Hazelwood Survey, was abandoned as dry in Georgetown lime at 3304 feet, elevation being 208 feet. Georgetown was topped at 3258 feet. Pecan Gap was topped at 2105 feet and base of it was reached at 2595 feet.

Two new locations were announced in Harrison County. William Atkinson is ready to spud Hays 1, J. C. Chappin Survey, six miles northeast of Marshall, county seat, and Thomas and Kinsey have derrick up for Watson 1, Thomas eden Survey. Officials of Ryan Consolidated Petroleum Corporation's H. H. Key 1, E. Carroll Survey, Harrison County, announce this test will be taken to the upper Trinity, which is expected to be topped between 4500 and 4800 feet.

New Peak in East Texas Tops Corsicana-Powell

Tyler, Texas.—Maintaining a daily average production of 339,950 barrels from 336 wells during the week ending April 29, the East Texas fields surpassed the former peak output of the previous week by 41,570 barrels. Unless proration fails to hold, these new production figures should stand as the record. East Texas has eclipsed the record held by the Corsicana-Powell field, which made a peak output of 320,182 barrels daily during the week ending November 18, 1923. The latter reached as high as 360,000 barrels on single-day gauges just as the new East Texas fields vary from day to day.

Accumulated production of East Texas up to April 29 is placed at 11,750,730 barrels. The 132 flowing wells in the Kilgore field averaged 187,250 barrels daily during the past week, and the Joiner field averaged 83,860 barrels from 164 wells, while the Longview field likewise made a new peak in flowing 68,840 barrels daily.

East Texas Production

Daily average production of the Joiner-Kilgore district and the Longview field is shown below, with total number of production wells included:

	Joiner-Kilgore		Longview	
Week ending—	No. Wells	Daily Average Production	No. Wells	Daily Average Production
February 18	22	19,090	1	6,511
February 25	24	24,954	1	7,044
March 4	39	51,475	1	4,578
March 11	50	75,170	1	7,170
March 18	64	75,540	5	14,021
March 25	81	104,345	6	17,769
April 1	115	119,500	11	24,990
April 8	159	165,250	16	26,000
April 15	198	210,208	25	38,180
April 22	234	239,515	30	58,480
April 29	296	271,110	40	68,840

Geological Cross Section of East Rim of East Texas Basin

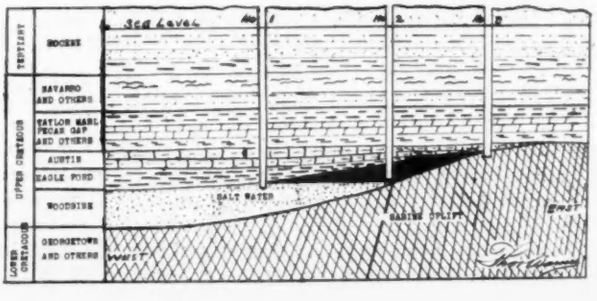
By THOR WARNER, *Consulting Geologist, Los Angeles*

This is a cross-sectional sketch looking north along what is geologically known as the East rim of East Texas basin. The cross-shaded portion in the lowermost section of sketch represents the probable surface position of Sabine Uplift consisting of Lower Cretaceous strata, prior to the invasion of the Upper Cretaceous sea which deposited its first sediment on top of the already existing land mass. This sediment was partly sand, which had been carried in suspension by the waters of that period and this is what is now known as the Woodbine sand.

Following the depositing of this sand and sandy sediment, there was considerable clay deposited and which in following successions alternated with lime, marl and sandy fragments eroded off the highlands of that period and by the streams transported to the sea and there deposited in layers and which in latter geologic times became solid bodies of the earth's strata.

As will be seen on the sketch the Woodbine sand decreased in thickness toward the shore line and came to a feather edge as the Upper Cretaceous sea washed against the old side hill. The oil originally accumulated farther out in the basin but migrated into the Woodbine sand strata and there came to a final hibernation in this natural trap formed by the pinching out of the sand, permitting the overlying shale and chalk to come in direct contact with Georgetown lime of the Lower Cretaceous strata.

The sketch is submitted to portray the importance of careful procedure in selecting drilling sites where leases are situated close to either side of field. Number 1 well is too far to the west and resulted in being a water well. Number 2 well is an ideal location and consequently a good well



having been drilled into the sand the proper depth. Number 3 well is too far to the east and therefore dry—having been drilled in to the Georgetown lime at edge of and east of the Woodbine formation.

Texas Pipe Line Company to Complete Expansion Work Soon

Texas Pipe Line Company expects to complete by about July 1 the expansion work which it has under way at present on its trunk line system serving the new East Texas field. After installing several additional booster stations, increasing capacity of several others, and finishing out loops which will result in a completely doubled line between San Augustine station and Port Arthur, the company will be able to handle as much as 50,000 barrels of crude daily from Rusk and adjacent counties, as compared with present maximum of about 25,000 barrels per day.

The looping program will involve laying of approximately 50 miles of 10-inch pipe and 12 miles of eight-inch. The new pipe will go into a 21-mile section immediately north of Jasper station, Jasper County, a 22-mile interval just north of Bunker Hill station, same county, and a 19-mile section extending north from Port Neches. The pipe, which is now being shipped, is in 60-foot joints.

Through transfer of equipment from West Texas and other districts, and without purchase of new machinery, Texas Pipe Line Company is proceeding with installation of four additional pump stations on its East Texas system. Torkild station, which will employ motor-driven centrifugal pumps with capacity of 55,000 barrels daily, is being built on the new 10-inch line out of the East Texas field at a point about 10 miles south of Joiner field in western portion of J. Roth Survey, Rusk County. This 10-inch line extends on farther south to the new Douglass station, David Cook Survey, Nacogdoches County, where connection is made with the company's Corsicana-to-San Augustine system of two eight-inch lines.

On that Corsicana-San Augustine section the other three additional stations will be erected, all employing Diesel engines and centrifugal pumps. Luther station, northwest corner of Anderson County and 33 miles east of Corsicana, and Starr station, 67 miles east of Corsicana in Cherokee County, will each have 25,000 barrels daily capacity, using 750 horsepower Diesel engines and centrifugal pumps, and Rodolfo station, seven miles east of Nacogdoches, Nacogdoches County, will have 30,000 barrels daily capacity.

South of San Augustine, Texas Pipe Line Company is adding steam pumps and boilers in Jasper and Bunker Hill stations, Jasper County, while the San Augustine station is to be supplemented with one Diesel engine driven unit which is being transferred from Iraan station, West Texas.

Cranfill-Reynolds to Enlarge Loading Racks in East Texas

Longview, Texas.—Cranfill-Reynolds Company plans to enlarge capacity of its tank car loading rack on the Santa Fe railroad one mile east of here to 90 cars. The rack has been operated heretofore with capacity of 66 cars, but there is sufficient land adjacent for the additional capacity. The rack site is on the east side of the railroad about one mile east of Longview in the Norvell Survey.

Cranfill-Reynolds Company in the meantime is marking time on plans formerly made for a 50-car rack on the International-Great Northern railroad in the M. Taylor Survey, 1½ miles southwest of Longview, and for a similar size rack near Willow Springs on the Texas & Pacific railroad.

The company has one of the largest gathering systems in the new East Texas field, its capacity being rated at approximately 30,000 barrels daily. Rail shipments from the Longview rack have been from 75 to 100 cars daily, or approximately 15,000 to 20,000 barrels per day, the crude going to Atreco, near Beaumont, for water shipment over docks of Atlantic Refining Company and to Texas City for tanker loading through Continental Oil Company's facilities.

Cranfill-Reynolds Company has extensive producing properties and leases in the Kilgore and Longview districts, and formerly had leases and several producing wells also in the Joiner field; but last week it disposed of the Joiner properties in several separate deals, obviating the need for extending the pipe line south from Kilgore field as originally planned.

Nine Workmen Lose Lives In Fire Near Gladewater

Tyler, Texas.—Lives of nine oil field workmen, including a portion of two drilling crews of the Loffland Brothers Company, were lost when Sinclair Oil & Gas Company's M. T. Cole 1, located in the Gladewater section of the East Texas district, caught fire from friction on the afternoon of April 28 while flowing wild. This heavy toll of lives is the second greatest in the history of oil development in Texas, having been surpassed when the J. K. Hughes interests' Mackie 1, Corsicana-Powell field, fatally burned 13 men, including members of two drilling crews. The latter defied experts for nearly 1½ months before it was controlled by installing a cone and blasting the flames. The well was burning at the start of the present week.

Members of Loffland Brothers Company's crews that lost their lives follow: Bill Harroun, Canadian, Oklahoma; Frank Feiock, Warner, Ohio; George Albright, Carnegie City, Pennsylvania; Bob Murdock, Orlando, Oklahoma; Roy Blankenship, Tulsa; Virgil Woltz, Hunter, Oklahoma. The following field workmen of the Sinclair Oil & Gas Company were fatally burned: John Keyes, Oklahoma City, Oklahoma; Wm. S. McCaslin, Sr., and Wm. S. McCaslin, Jr., both of Hunter, Oklahoma.

Cole 1 began flowing wild April 26 when the crew drilled out casing cement without control head and connections in place. The flow of oil and gas steadily increased until rated at about 300 barrels oil per hour and more than 5,000,000 cubic feet of gas daily from regular sand horizon at 3647-61 feet. This blowout between drill stem and casing necessitated the immediate killing of fire in nearby boilers, so work in killing the flow could not proceed until the pots could be moved back. Glenn Harroun, general superintendent in the district for Sinclair Oil & Gas Company, and a brother of one of the victims, was on hand when work resumed on the afternoon of April 28 in removing the drill stem to cap the well. A spark generated by friction ignited the production, and several other workmen barely escaped with their lives.

Since the drill stem protrudes above the top of the open casing a difficult task in killing the fire and controlling the production awaits the experienced crew of fire fighters engaged by the well owner. Myron M. and Floyd Kinley, brothers, of Oklahoma, were placed in charge of the work, but the former was handicapped after breaking a small bone in his leg May 1 while dragging debris from the well location to make ready for the nitro blast.

Usual fire fighting equipment was supplemented by an airplane motor mounted upon a truck, and placed in position to ward off a portion of the intense heat given off by the flames, also to protect the workmen from a possible backwash of the flames. This arrangement enabled workmen to approach nearer the well than could be attained otherwise.

EAST TEXAS HIGHLIGHTS

By H. H. KING
Staff Representative

Sun Acquires New Racks

Sun Oil Company has acquired two more tank car rack sites as a preparedness step in following up development of its leases in the Longview and Joiner fields. Announcement had previously been made of the company's purchase of a 30-car rack site in the Kilgore field and on the east side of the I. & G. N. Railroad. These proposed racks may be built and operated even though the company proceeds with the construction of a direct trunk line to the Gulf Coast, as the latter would not be available for handling oil until about three months, and transportation relief would have to be obtained sooner. The company acquired site for a 40-car rack on the B. C. Todd and T. B. Stinchcomb farm, W. H. Hart Survey, near Signor station on the Texas & Pacific Railroad in northeastern Gregg County, and a 5.89-acre site on the J. D. Arnold farm, Wm. Irons Survey, located on the southeast side of the I. & G. N. Railroad, being about three miles northeast of Arp, Smith County. The latter will serve Sun Oil Company's big block of leases in the western part of the Joiner field.

Cities Service Buying Tanks

An inquiry for price bids on 100, 80,000-barrel steel storage tanks recently placed by the Henry L. Doherty interests, operating in East Texas as the Arkansas Fuel Oil Company and Arkansas Pipe Line Corporation, has all the leading tank concerns literally clutching their sharpest pencils to try and participate should the big order materialize. It is understood that the bulk of the tanks would be erected in East Texas if purchased, while the remainder would be assigned to the Shreveport terminus of the company's trunk line system. The original inquiry was altered last week to substitute some 80's for 118,000-barrel capacity tanks, with the 8,000,000 barrels gross capacity standing. Successful bidders are required to be prepared to deliver an average of one completed tank daily beginning within a certain number of days after the order has been placed.

Gulf Extending Line

Gulf Pipe Line Company has made survey for a 4½-mile north extension to its pipe line which serves Kilgore district production of Gulf Production Company and that company's associates. From the present north extremity of that line, near center of north line of Isaac Ruddle Survey, it is planned to build a six-inch line into the southern portion of L. B. Outlaw Survey, about 2½ miles north of Kilgore.

From the present north extremity of this line an eight-inch carrier extends southwesterly to centrifugal pump station on the Motley lease, James Whiteman Survey, and thence more westerly into Smith County to a point near center of John Pate Survey, 3½ miles north of Arp, where connection is made with Gulf Pipe Line Company's Mid-Continent to Gulf Coast trunk line—three eight-inch and one six-inch.

From the above mentioned pump station southwest of Kilgore the company has a six-inch connection, approximately six miles long, into the Joiner area, terminating in southeastern portion of the Francisco Cordova Survey.

The Joiner-Kilgore system is being used solely for transporting oil from leases held by Gulf Production Company and its associates, Devonian Oil Company, E. L. Smith Oil Company and H. R. Smith.

Marine Corporation Moving Crude

Marine Corporation began moving crude over its tank car rack in the Kilgore field April 27, having heretofore used facilities of other pipe line companies in the field to make deliveries on a 175,000-barrel crude contract held with Atlantic Refining Company. Marine Corporation maintains general offices at Los Angeles, with a district office under the management of G. C. Dunn at Dallas. Negotiations are now pending for the sale of a large amount of oil to a refinery on the Texas Gulf Coast.

Arkansas Pipe Line Corporation is seeking route for a six-inch pipe line to be extended from its main line pump station in the Longview district in a southwestern direction across Gregg County to the Kilgore and Joiner fields. Arkansas Fuel Oil Company is starting development work on a lease in the latter area, and will need this connection for a market outlet.

Water Disposal Problem

Salt water encroachment upon various sections of the Kilgore field is not causing as much worry to well owners as does the problem of disposing of the brackish waters without facing the inevitable damage suits for alleged stream pollution and destruction of farm lands. The natural drainage from the Kilgore and Longview fields is almost a straight path to the Sabine River, which is normally a fresh water stream and the only source of water supply for hundreds of cities and communities located down stream between the oil fields and the Gulf Coast. Warnings have already been issued by fish and game law enforcement authorities about waste oil finding its way into this stream, and there is danger of injunctions being brought into play against oil operations by towns dependent upon the Sabine River for water supplies. A community owned and operated water disposal system is inevitable for East Texas, as private plants in so great an area would be physically impossible. Prompt action in impounding salt water before serious damage takes place will forestall payment of greater amounts in damage suits.

Humble Oil & Refining Company placed its fifth lease on production in the Van field when its C. L. York 1, located in the northeast extension area, flowed 117 barrels per hour through 11/16-inch choke from sand at 2589-2913 feet. This well logged Georgetown lime at 2913-21 feet, and apparently ripped through a fault, as only seven feet of Austin chalk was logged. Pecan chalk was reported at 1750-1898 feet, and Austin chalk at 2104-11 feet. The company has made location for R. S. Blake 12 directly south of this new producer. Allowable production of the Van field advanced 5000 barrels daily to a new peak of 45,000 barrels daily beginning May 1, and will be increased to 50,000 barrels daily beginning June 1.

Shreveport.—Root Refining Company has bought 50,000 barrels of East Texas crude oil from Southern Oil Refining Company for 30 cents per barrel delivered to tank cars. The oil will be used at Root's El Dorado, Arkansas, refinery.

Center, Texas.—Magnolia Petroleum Company has three crews of approximately 25 men each building four 80,000-barrel storage tanks at their booster station in Shelby County, two miles from here. Chicago Bridge & Iron Works has the contract for erecting the tankage.

Large Outlet Available for East Texas Crude

(*Continued from page 45*)

and empty. But a great deal of new trackage has been constructed by the railroads, aside from the racks built by the oil interests; and it is estimated that rail shipments of oil from the East Texas field have actually exceeded 200,000 barrels per day. The International-Great Northern system alone, serving racks in Joiner, Kilgore and Longview fields, and having nearly two-thirds of all the rack capacity in the field, has handled as many as 800 loaded tank cars in a day, or about 160,000 barrels. Meanwhile the Texas & Pacific and Santa Fe railroads have been moving considerable quantities of oil, and the Cotton Belt railroad has also been sharing to some extent in the business.

Tank Car Racks in East Texas

GREGG COUNTY

Owner—	Railroad Connection	Shipping Point	Rack Capacity in cars	Location
Arkansas Fuel Oil Co.	T&P	Willow Springs	44	S of Ry. on Stevens-Lawrence farms, I. Skillern sur.
Atlas Pipe Line Co.	I&GN	Footes	70	3 mi. sw Longview, S. P. Ford sur.
Cranfill-Reynolds Co.	Santa Fe	Longview Junc't	66	J. W. Johnson farm, H. W. Norvell sur.
Cranfill-Reynolds Co.	I&GN	Footes	50	F. T. Rea farm, Manson Taylor sur, (proposed).
Cranfill-Reynolds Co.	T&P	Willow Springs	50	Cookson-Burton farms, I. Skillern sur. (proposed).
East Texas Refining Co.	Santa Fe	Longview Junc't	76	East edge Longview.
Independent Pipe Line Co.	T&P	Willow Springs	50	Protho-Moore farms, I. Skillern sur.
Macmillan Petroleum Corp.	T&P	Willow Springs	40	M. Smith 30-ac. site, I. Skillern sur.
Illinois Pipe Line Co.	T&P	Camps	50	E. M. Nettleton farm, J. Ruddle sur.
Oriental Oil Co.	I&GN	Kilgore	6	Immediately n of Texas Unity rack, ½ mi. se Kilgore.
Slack Petroleum Co.	T&P	Camps	8	Maude Smith farm, I Skillern sur.
Shell Petroleum Corp.	T&P	Camps	30	E. M. Nettleton farm, J. Ruddle sur.
Shell Petroleum Corp.	I&GN	Kilgore	50	Utzman farm, M. V. Winkle sur.
Simms Oil Co.	T&P	Willow Springs	36	Toler 13.4-ac. site, I. Skillern sur.
Sun Oil Co.	I&GN	Kilgore (X)	30	S. S. Laird farm, M. V. Winkle sur.
Sun Oil Co.	T&P	Signor (X)	40	B. C. Todd-Stinchcomb farm, W. H. Hart sur.
Texas Unity Oil Co.	I&GN	Kilgore	60	M. Van Winkle sur.
Texas Pacific Coal & Oil Co.	T&P	Gladwater (X)	10	
Vacuum Oil Co.	T&P	Camps	40	R. B. White farm, D. Moore sur.
Total: 19 racks, capacity in cars			806	

RUSK COUNTY

Beacon Oil & Refining Co.	I&GN	Poindexter	26	4 mi. nw Henderson, J. H. Allen farm, Taylor Brown sur.
Burton Drilling Co.	I&GN	Reeds	25	Crim farm, E. G. Sevier sur.
Central Pipe Line Co.	I&GN	Overton	25	Bacon farm, T. C. Lloyd sur.
Crown Pipe Line Corp.	I&GN	Poindexter	34	Friar farm, T. H. Smith sur, 5.3 mi. se Overton.
Gulf Coast Pipe Line Co.	I&GN	Poindexter	50	Thomas Smith sur, 5 mi se Overton.
Houston Oil Co.	I&GN	Kilgore	44	Jones-Peterson 10-ac lease, I Ruddle sur., 2½ mi sw Kilgore.
Humble Oil & Ref. Co.	I&GN	Kilgore	75	nwc of J. N. Peterson farm, I Ruddle sur, 3 mi sw Kilgore.
Independent Oil Supply Co.	I&GN	Overton	16	se edge Overton.
Inland Waterways P.L. Co.	I&GN	Poindexter	30	Robertson farm, H. Henderson sur, 6.2 mi se Overton.
Marine Corporation	I&GN	Kilgore	40	Nat. Bean 54-ac., I, Ruddle sur, 1.9 mi sw Kilgore.
Panola Pipe Line Corp.	I&GN	Poindexter	56	N. Carey farm, G. W. Guthrie sur, 6.5 mi se Overton.
Petroleum Mark't Corp	I&GN	Poindexter	25	N. L. Marwill farm, B. Smith sur., 6.2 mi se Overton.
Republic Prod. Co.	I&GN	Reeds	50	n end C. E. Christian 110-ac., R. W. Smith sur., 6 mi. sw Kilgore.
Rusk County P L. Co.	I&GN	Poindexter	36	N. Carey farm, G. W. Guthrie sur, 6.5 mi se Overton.
Sabine Pipe Line Co.	I&GN	Reeds	50	Christian farm, W. R. Cook sur, 6.5 mi sw Kilgore.
Sinclair-Texas P.L. Co.	I&GN	Poindexter	40	W. L. Friar farm, H. Henderson sur., 6 mi se Overton.
Sinclair-Texas P.L. Co.	I&GN	Kilgore	65	Due n of Humble's rack, I. Ruddle sur,, 2.8 mi sw Kilgore.
Stanolind Oil & Gas Co.	I&GN	Kilgore	50	
Woodley Petroleum Co.	I&GN	Kilgore	34	Joe Ladd farm, I. Ruddle sur.
Total: 19 racks, capacity in cars			771	

SMITH COUNTY

Houston Oil Co.	Cotton Belt	Amigo	40	K. H. Muse sur., n edge Amigo and 7 mi ne Tyler.
Illinois Pipe Line Co.	I&GN	Arp	36	J. H. Murphy farm, Jas. Jordan sur., ½ mi sw of Arp.
Tyler Pipe Line Co.	Cotton Belt	Tyler	60	
Sun Oil Company	I&GN	Arp (X)	40	J. D. Arnold 5.89-ac site, Wm. Irons sur, 2½ mi ne Arp.
Total: 4 racks, capacity in cars			176	
GRAND TOTAL: Gregg-Rusk-Smith Counties: 42 racks, capacity in cars			1619	

(X) Proposed.
*Building.
Note—Poindexter also known as Friar's Switch.

Steel Tankage in East Texas

Recapitulation

County—	No. Tanks	Capacity in bbls.
Gregg	20	1,225,500
Nacogdoches	4	220,000
Rusk	15	950,500
Shelby	6	430,000
Smith	12	910,000
Total	57	3,736,000

GREGG COUNTY

Owner—	No. Tanks	Capacity in Bbls.	Location—
Arkansas Pipe Line Corp.	2	55,000	I. Skillern and H. McNutt surveys.
Atlas Pipe Line Co.	3	80,000	S. P. Ford survey.
Cranfill-Reynolds Co.	5*	55,000	Mrs. L. C. Calvin farm, M. Mann survey.
Humble Pipe Line Co.	2	64,000	W. H. Owings 21-ac site, A. R. Johnson survey.
Humble Pipe Line Co.	1	37,500	W. H. Owings 21-ac site, A. R. Johnson survey.
Illinois Pipe Line Co.	2	55,000	E. M. Nettleton farm, J. Ruddle survey.
Magnolia Pipe Line Co.	2	80,000	J. A. Norris 50-ac site, G. W. Groce survey.
Magnolia Pipe Line Co.	2	55,000	J. A. Norris 50-ac site, G. W. Groce survey.
Shell Petroleum Corp.	1	55,000	H. T. Elder 25-ac site, M. V. Winkle sur.

NACOGDOCHES COUNTY

The Texas Pipe Line Co.	4*	55,000	Douglas station.

RUSK COUNTY

Houston Oil Company	2	55,000	D. M. Peterson 10-ac lse., I. Ruddle survey.
Houston Oil Company	2	55,000	Smith-Peterson 30-ac Lse., I. Ruddle survey.
Houston Oil Company	1	80,000	Smith-Peterson 30-ac Lse., I. Ruddle survey.
Humble Oil & Refining Co.	2	64,000	Kangerga Bros. 313-ac., M. J. Prue survey.
Republic Production Co.	2	80,000	J. H. Scoggins 60-ac., E. Collard survey.
Rusk County Pipe Line Co.	1	80,000	N. Carey farm, G. W. Guthrie survey.
Tyler Pipe Line Co.	1	55,000	H. C. Minor 147-ac., Wm. Killen survey.
Woodley Petroleum Co.	1	80,000	D. M. Peterson 20-ac., I. Ruddle survey.
Woodley Petroleum Co.	2	55,000	Joe Ladd 60-ac., I. Ruddle survey.
Woodley Petroleum Co.	1	37,500	Joe Ladd 60-ac., I. Ruddle survey.

SHELBY COUNTY

Magnolia Pipe Line Co.	4*	80,000	Tyler farm, Wm. Hamer survey.
Magnolia Pipe Line Co.	2	55,000	Tyler farm, Wm. Hamer survey.

SMITH COUNTY

Houston Oil Company	2	80,000	20-ac. rack site in K. H. Muse sur, and on n edge Amigo Townsite.
Tyler Pipe Line Co.	2	55,000	Tyler.
Sinclair-Texas Pipe Line Co.	2*	80,000	
Sinclair-Texas Pipe Line Co.	6**	80,000	

*Building.
**Authorized.

East Texas Trunk Lines

Owner—	Size Line	Total Miles	Daily Capacity in Bbls.	From—	To—
Arkansas Pipe Line Corporation	8	66	20,000	Longview field pump station	to Shreveport, La.
Atlas Pipe Line Company	8	57	20,000	Longview field pump station	to Jewella, near Shreveport.
Gulf Pipe Line Company	6-8	17	35,000	From Kilgore, 11 miles 8-inch via pump station, J. Whiteman Survey, to center Jno. Pate Survey, 3½ miles n Arp, connecting with Mid-Continent-Gulf Coast trunk line; 6 miles 6-inch from Kilgore station s to se part Cordova Survey, Joiner field.	
Humble Pipe Line Company	8	13	24,000	Kilgore field	to Longview pump station on Van-Louisiana 10-inch.
Humble Pipe Line Company	8	33	20,000	Kilgore field via Joiner field	to Todd station, connecting with Boggy Creek-Groesbeck 8-inch unit.
Magnolia Pipe Line Company	10	59	32,000	Norris station, G. W. Groce Survey, Gregg County,	to Center station, Shelby County, connecting with Arkansas-Louisiana-Beaumont 8-inch.
Magnolia Pipe Line Company	6-8-10	15	35,000	Kilgore field	to Norris Station.
Magnolia Pipe Line Company	6-8	12	25,000	Longview field	to Norris Station.
Sinclair-Texas Pipe Line Company	12	85(*)	50,000	Joiner field	to Teague Station, Freestone County, where connection made with Prairie & Pure Oil P. L. Co. systems.
The Texas Pipe Line Company	10	51 (Z)	25,000	Kilgore field via Joiner field	to Douglas station, Nacogdoches County, connecting with Corsicana-St. Augustine 8-inch line.

(*) Building.
(Z) Increasing to 50,000 barrels capacity.

Pipe Lines to Tank Car Racks and Refineries in East Texas

Owner—	Size Line	Miles Main Line	From—Field	To—
American Pet. Co. (Republic)	6	8	Kilgore	Reeds
Arkansas Fuel Oil Co.	6	5	Longview	Willow Springs
Atlas Pipe Line Co. (Olvey)	8	12	Kilgore	Footes
Beacon Oil & Refining Co.	4	7	Joiner	NW Henderson
Burton Drilling Co.	4	5	Kilgore	Reeds
Boone Refining Company	4	5	Joiner	Arp
Central Pipe Line Co.	4-6	10	Joiner	Overton
Cranfill-Reynolds Co.	4-6-8	30	Kilgore	Footes and Longview Junction
Crown Pipe Line Corp.	6	3	Joiner	Poindexter
East Texas Refining Co.	4-6	25	Kilgore and Longview	Longview Junction
Gulf Coast Pipe Line Co.	4	10	Joiner	Poindexter
Houston Oil Co.	6	5	Kilgore	Kilgore
Houston Oil Co.	4-6	17	Kilgore	Amigo
Humble Oil & Refining Co.	4-6	5	Kilgore	Kilgore
Illinois Pipe Line Co.	4-6	7½	Joiner	Arp
Illinois Pipe Line Co.	6	12	Kilgore	Camps
Illinois Pipe Line Co.	4-6	5	Longview	Camps
Independent Oil Supply Co.	4	8	Joiner	Overton
Independent Pipe Line Co.	4-6	9	Longview	Willow Springs
Inland Waterways Pipe Line Co. (2)	4	6	Joiner	Poindexter
Macmillan Pet. Corp.	4	5	Longview	Willow Springs
Marine Corporation	4-6	1½	Kilgore	Kilgore
Oriental Oil Co.	4	½	Kilgore	Kilgore
Panola Pipe Line Corp	4	7	Joiner	Poindexter
Panola Pipe Line Corp	6	3	Joiner	Poindexter
Petroleum Mark't. Corp.	6	10	Joiner	Poindexter
Rusk County Pipe Line Co.	4-6	5	Joiner	Poindexter
Sabine Pipe Line Co.	4	3	Kilgore	Reeds
Shell Petroleum Corp.	4-6	5	Longview	Camps
Shell Petroleum Corp.	6-8	7	Kilgore	Kilgore
Simms Oil Company	4-6	10	Longview	Willow Springs
Sinclair-Texas Pipe Line Co.	6	5	Joiner	Poindexter
Sinclair-Texas Pipe Line Co.	6	4	Kilgore	Kilgore
Slack Petroleum Co.	4	3	Longview	Camps
Stanolind Oil & Gas Co.	6	2	Kilgore	Kilgore
Sun Oil Company	4-6	3	Kilgore	Kilgore
Texas Pacific Coal & Oil Co.	4	..	Longview	Gladewater
Texas Unity Oil Co.	4	..	Kilgore	Kilgore
Tidal Refining Co.	4-6	30	Joiner	
Tyler Pipe Line Co.	4-6-8	15	Kilgore and Joiner	Tyler
Vacuum Oil Co.	4	..	Longview	Camps
Woodley Petroleum Co.	4	3	Kilgore	Kilgore

Total: 4-6-8-inch lines ..... 316½ miles

Note—Poindexter also known as Friar's Switch.

New East Texas Refineries

IN OPERATION

Company—	Railroad Connection and location—	Daily Capacity (Bbls. crude oil)
Beacon Oil & Refining Company	I.-G. N.—2½ miles nw Henderson	2,500
East Texas Refining Company	I.-G. N.—Midway Henderson-Overton	6,000
East Texas Refining Company	Santa Fe—1 mile se Longview	6,000
Total		14,500

BUILDING*

Amarillo Producers & Refiners Corporation	I.-G. N.—1 mile se Overton	3,000
Arrow Refining Company	I.-G. N.—½ mile n Overton	2,500
Boone Refining Company	1 mile e Arp—no R. R. connection	1,000
Slack Petroleum Company	T. & P.—6 miles w Longview (camps)	2,500
Taylor Refining Company	Cotton Belt—Adjacent to Tyler	15,000
Total		24,000
Grand Total, in operation and building		38,500

PROPOSED

Bell Oil & Gas Company	T. & P.	2,500
Kouri Brothers	T. & P.—Outskirts Gladewater	....
Macmillan Petroleum Corporation	T. & P.—Camps, w of Longview	7,000
South Kilgore Refining Company	I.-G. N.—Kilgore	....
Primrose Petroleum Company	T. & P.—Camps, w of Longview	....
South Kilgore Refining Company	I.-G. N.—Kilgore	....

* All scheduled to be completed during May.

South Texas Field Developments

EARL POST, ***Staff Representative, San Antonio, Texas***

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Darst Creek Potential Is Now 147,503 Barrels Daily

San Antonio, Texas.—Darst Creek field, Guadalupe County, has a potential production of 147,503 barrels, according to the proration schedule for the period May 1 to June 1 just issued by H. H. Fitzpatrick, umpire. The allowable for that period remains at 20,000 barrels daily, or .12908 per cent of the total.

During the week, one completion was reported on an inside location. It was Magnolia Petroleum Company's Klein 8, which is making about 325 barrels total on pump. It topped the Edwards at 2623 feet and was drilled to 2633 feet.

The proration schedule for the 30-day period is as follows:

Company—	No. Wells	Potential	Allowable
Abercrombie & Harrison	5	3,774	487
Cranfill & Reynolds	1	97	97
Empire Gas & Fuel Company	8	2,048	347
Gulf Production Company	52	32,855	4,306
Humble Oil & Refining Company	48	28,220	3,642
Louisiana Oil Refining Corporation	17	10,763	1,469
Magnolia Petroleum Company	47	13,916	2,041
Penn Oil Company	1	45	45
Stroube & Stroube	1	95	95
Sun Oil Company	15	16,394	2,142
Texas-Humble et al	1	776	100
The Texas Company	54	37,481	4,836
Dr. Thomson	1	25	25
L. C. Turman	2	25	25
Trinity Drillers	3	786	142
H. H. Weinert A	1	90	90
H. H. Weinert B	1	61	61
H. H. Weinert C	1	50	50
Total	259	147,503	20,000

Muckelroy Pool is Extended Three-Fourths Mile to South

San Antonio, Texas.—A three-fourths mile south extension was added to the Muckelroy pool, Zapata County, by completion of a good sized producer in Nordan and Morris' (Bateman) Jose Bustamante 1. The well also is believed to have proven another sand for the south end of the field.

The test is located 750 feet from the northeast line and 200 feet from the northwest line of Share 35, Fansler Partition, Comitas Grant. It is about one-half mile north of the Whicker wells, which last summer either opened a new pool or extended the original Muckelroy pool to the south.

The test is producing from the sand cored at 1485-91 feet, with 6⅝-inch casing set at 1485 feet. The well swabbed from 600 to 800 barrels while being brought in and later flowed through one-quarter inch choke on two-inch tubing at the rate of 19½ barrels an hour. It shot a solid stream of oil fully 30 feet into the derrick when the choke was opened, it is said.

The well cored a sand at 1321-40 feet, which showed saturation. On a drill stem test of the first five feet, the test showed a little oil with no gas or salt water. The test of the remainder, however, developed salt water with the oil. A cap was then encountered at 1364-66 feet, below which a salt water sand was encountered at 1366 feet.

The logs of the wells drilled on the Whicker block, ranging from one-half to one mile to the south, show production in sands to a total depth of more than 1400 feet. The elevation of the two wells and the general decline in formations possibly accounts for both the new producer and those in the south extension of the Muckelroy pool producing from the same horizon.

It will be remembered that S. R. & C. Oil Corporation's Montemayor was brought in as a large gasser at depth of 1492 feet, but was abandoned after running wild and after salt water broke in. This well is located in Block 8, survey 64. Just exactly where the production came from was not determined as there was considerable open hole, the casing being set at 1337 feet.

Nearly three-fourths of a mile east and north of the new oil producer, E. C. Brogan has cored a sand in his Montemayor 1, which is showing for a good producer. The well has the sand at 1494-1500 feet and has casing set at 1485 feet. It will be completed within a few days. The location is 150 feet from the north and west line, Block 11, survey 64.

In the main field, Trevino Oil Corporation (Edgington and Niles) has completed Trevino 8-A for an initial production of 50 barrels from the sand at 1219-34 feet. O. W. Killam has a 10-barrel well in his Bustamante 6 at 1231-43 feet.

Make Further Attempts To Widen Pettus Field

San Antonio, Texas.—Additional attempts are being made to widen further the Pettus field, which during the last few months has received a rather active semi-wildcatting campaign. During the past week, two more operations were started in probable producing area of the Bee County district.

In the Willis A. Moore Survey, about one mile east and slightly south of the Ray-McKinney pool, United Production Corporation is rigging up Ray 37. The well is 3201 feet along the southeast line of the survey from the extreme south corner, thence 996 feet northwest at right angles to the southeast line. This well will be watched with much interest as three extensions have been provided for this field in this direction during the past three months, adding more than one-half mile to the proven limits.

At present, United Production Corporation's Ray 38, 900 feet east and 10 degrees south of Ray 35, is making hole below 2750 feet. This well is nearly 1000 feet east of any production in this pool. It is in the T. Hanson Survey.

Another well started during the past week, which is due for considerable play, is Davis et al's Ray 1, in the northeast corner of the Ray 39-acre tract, three-fourths of a mile south of the Pettus townsite pool. This well is just north of William F. Morgan's Ray 1, which showed considerable oil and salt water, but was abandoned. This well is about two-thirds of a mile due south of Mauldin et al's Mauldin 1, which showed for a producer in a sand at 3847-54 feet recently. The Mauldin

well is shut down at present, but is expected to set casing and be tested in the near future.

Mineral Oil Company (Mauldin and Fisher) is working on A. J. Kimball 1, which showed 35 barrels production in eight hours on April 25 from the sand at 3537-40 feet. The well will not flow, according to reports, and a gas lift is to be installed. The well is 300 feet south and 21 degrees east of Grayburg Oil Company's Kimball 1, which showed for a producer at 3545-55 feet last summer, but was abandoned when salt water broke in. Several tests have been drilled in that sector since, but this well is the first to be completed as a producer. It is in the Stephin Winship Survey, seven miles southwest of Pettus.

Houston Oil Continues Mount Lucas Drilling

San Antonio, Texas.—Houston Oil Company is continuing its drilling campaign in the Mount Lucas district of Like Oak County, announcing a new operation on its Cartwright lease. The new test is Cartwright 23, located 691 feet north and 30 degrees, 42 minutes east of the No. 11 on same lease, Sandman Survey. The well is reported to be rigging up.

Houston Oil Company's Brown Land and Cattle Company 4, in the southwest corner of the M. B. Kivlin Survey, near the field, is fishing for the milling tool and part of the drill stem at a total depth of 5726 feet. The well is to be plugged back to 1918 feet to test the gas sand, it is reported.

Burke-Greis Oil Company's George West, in the James L. Vaughn Survey No. 57, 10 miles west of George West, Live Oak County, has been spudded, while Simmons Oil Company's Wedding 1, two miles north of Three Rivers, also in Live Oak County, has been abandoned as dry at 2410 feet.

Saxet Field Again Active With Three Tests Started

San Antonio, Texas.—The Saxet field, Nueces County, again becomes active, as three new tests are started. All of them are in semi-wildcat territory and will attract much interest.

Gulf Coast Oil Company's Harrell 1, in Section 311, Block 32, GC&SF Survey, has set 447 feet of surface casing. This well is located about three-fourths of a mile north of Moody-Seagraves Producing Company's Sedwick 1, which is the farthest north oil producer in the field.

East of the Sedwick well, L. L. Smith, Inc., has set surface casing at 550 feet in Hunter 1. This well is located in the northern part of the tract in the Rincon del Osa grant.

A total of 1000 feet north and 500 feet east of Saxet Oil Company's Dunn 7, it is drilling below 800 feet in Dunn 8. This well is in virtually proven territory.

Complete Large Gas Well In San Patricio County

San Antonio, Texas.—Aransas Oil Company has completed its Welder 1, San Patricio County, about midway between the Saxet field in Nueces County and the Refugio field, Refugio County, as a large gas well. The well opens an entirely new field five miles northeast of Sinton.

The producer is showing between 30,000,000 and 40,000,000 cubic feet of dry gas through a one-fourth inch choke and is registering 1600 pounds pressure on the tubing. It logged the sand at 3653-63 feet and has 6⅝-inch casing set at 3652 feet.

The exact location is 390 feet from the west line and 5167 feet from the south line, E. Portillo Survey. The well is 500 feet northeast of Houston Gulf Gas Company's Welder 3, which showed oil and gas at various levels below 3000 feet.

Two other operations are reported in San Patricio County, both in the White Point district. Saxet Oil Company is attempting to get another drill stem test of its White Point Development Company 4 in a sand at 4010-36 feet. At the top of this sand, the well showed eight fourbles of mud and little gas. It is to be tested at a lower level in an effort to find oil. Houston Oil Company's Rachel 17 is the only oil producer in the White Point field, the test making about 60 barrels initial from a depth of 4901 feet. In the same field, United Production Company's Cage 3 has been abandoned at 4012 feet, regarded as dry.

Archer County's 2200-Foot Oil Horizon Proves Erratic

Wichita Falls, Texas.—Archer County's recently established 2200-foot oil horizon promises to become as erratic as has been the history of the regular shallow sands in the county; and two tests drilled to the new production level have been abandoned as failures. Will C. Young et al's Langford Investment Company 1, located in the northwest corner of Section 148, Harris sub-division, was abandoned at 2300 feet, and Frazier & King's W. L. King 1, Wm. Henry Survey A-163, passed up traces of oil in sandy-shale at 2130-34 feet, with abandonment taking place at 2226 feet. More than a half dozen deep tests are still under way in the county.

The discovery well on the new deep horizon in Archer County is the largest producing well in the North Texas district, although completed six weeks ago by Deep Oil Development Company on the Wilson ranch from sandy-lime at 2216-23 feet, corrected depth, making 400 barrels daily. The well was deepened one foot middle April to 2224 feet, and flowed 740 barrels on 24-hour gauge through 8¼-inch casing, and later flowed 720 barrels through tubing, with 400 pounds back pressure on casinghead. A re-gauge taken early last week for the new proration period credited the well with a daily flow of 666 barrels through tubing.

A string of seven-inch pipe is to be installed in Deep Oil Development Company's Munger 1, which recently established a new deep oil horizon in the K-M-A field, Wichita County, after being plugged back from 5430 to 3977 feet and shot with 500 quarts of nitro at 3675-3942 feet. The shot damaged the nine-inch casing, but a small producer is assured. The company's original deep test for the district on the Hirschi farm, located in northern Wichita County, is drilling in Ellenberger lime with heavy rotary below 5500 feet, with a 6000-foot contract to fulfill.

Dry gas production encountered in broken formation between 3552 and 3630 feet by The Texas Company's wildcat on the J. H. Johnson land in Foard County, has been drowned out since drilling into water at 3747-70 feet. The flow gauged a peak of 3,500,000 cubic feet daily.

San Angelo, Texas.—No action has been taken by the Texas Railroad Commission in regard to the protest registered April 20 by majority members of the proration advisory committee of the Yates field against the production allowance of the field being held down to 70,000 barrels daily in the face of a nominated demand for 87,000 barrels daily. This field was cut from 89,500 to 70,000 barrels daily effective April 4 on recommendations of the central proration advisory committee, and without the sanction of the majority of the producers and purchasers in the field. The field started the current month with production restricted to 70,000 barrels daily. It is reported that the commission will hold a special hearing on the production allowance of the field shortly.

Gulf Coast Field Developments

JACK LOGAN, ***Staff Representative, Houston, Texas***

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Two Completions Made In Barbers Hill Field

Houston.—Barbers Hill field continued to increase its list of completions during the past week when Humphreys Corporation brought in E. H. Winfree 1 and E. H. Winfree 3 and Yount-Lee Oil Company completed Chambers County Agricultural Association 19. Both of the Winfree wells are located on the west side of the field and Yount-Lee Oil Company's well is located on the southeast flank of the dome.

E. H. Winfree 1 was completed at 5682 feet for an initial production of 2100 barrels of 33 gravity oil after six joints of screen had been set. Pressure of the well registered 600 pounds with temperature of the oil at the well recorded as 72 degrees. E. H. Winfree 3, in the Smith Survey, was brought in for an initial flow of 2640 barrels of oil flowing through a 19/32-inch choke from 5716 feet. Humphreys Corporation has made location for E. H. Winfree 6 and will start rigging up shortly.

Chambers County Agricultural Association 19 of Yount-Lee Oil Company made an initial flow of 700 barrels from 3794 feet. This well hit salt at 1542 feet and was drilled to a depth of 5747 feet before it was side-tracked at 2639 feet.

The west side of the field will probably see four more completions during the coming week. The Texas Company's E. H. Winfree 2 is down 5040 feet in shale and lime and E. H. Winfree 3 is drilling in sand and shale at 5370 feet. A favorable oil show has been encountered and will be tested sometime during the week. Humphreys Corporation's E. H. Winfree 2 is approaching the producing depth on the west side at 5420 feet in shale, and Winfree 4 is down 5340 feet in shale and is waiting on the cement to set.

Production in the field is being held down to a daily average of 30,000 barrels from 171 producing wells.

Shepherds Mott Wildcat Abandoned at 5244 Feet

Houston.—Cockburn Oil Corporation has abandoned its wildcat test, Hawkins 2, on the Shepherds Mott prospect, Matagorda County, at 5244 feet. This test is located on what is thought to be the more northerly of twin domes, 2700 feet due west of Hawkins 1, or 6336 feet south and 2700 feet west of the north corner of the Farnum Fry Survey.

Tests made of the sand at the final depth the second week of December, 1930, showed favorable signs of oil production. The well produced two or three barrels of 37 gravity oil in 48 hours. Collapsed casing necessitated a side-tracking job and the test was drilled back to the former total depth but tests then showed salt water.

Another attempt will be made to locate oil on the prospect with the drilling of Cockburn Oil Corporation's Hawkins 3, which will be located a short distance due south of the Hawkins 1. The new location is 4810 feet southeast along the southwest line from the west corner, thence 240 feet northeast at right angles in the Farnum Fry Survey.

Torsion balance surveys showed this prospect to be composed of twin or double domes, lying in the Fry, McCarthy and Dwyer Surveys. Crossland et al drilled Hawkins 1 on the supposed south dome, encountering a showing of gas at 3802 feet, but finally abandoned it at 4850 feet. The north dome has had two tests recently, Cockburn Oil Corporation's Hawkins 1 and 2. Hawkins 1 was abandoned in heaving shale at 6151 feet.

200-Barrel Well Raises Blue Ridge Production

Houston.—Production in the Blue Ridge field was increased 200 barrels per day during the past week when Doney and Means brought in Bassett Blakely 1 at 3790 feet. The well started flowing through one-half inch choke after 130 feet of 4¾-inch screen had been set on bottom of the hole. This producer is located on the east side of the field in Lot 8 of Block "D" of the Drew Survey.

Telschow, Cady et al's Blakely 1, also in the Drew Survey, is drilling at 1160 feet in gumbo.

Other operations in Fort Bend County include a location by Cullen & West, Lockwood 1, three miles south of Thompson in the John Rabb Survey, which is being rigged up, and Gulf Production Company's Moore 29, in the Moores field. This well was spudded in last week and is drilling ahead in sand at 80 feet.

Gulf Coast Operators to Meet In Houston, May 7

Houston.—The recently elected Gulf Coast operators' advisory committee is scheduled to meet May 7 at Houston to lay final plans for holding down Gulf Coast production to the allowable of 140,000 barrels daily which it has been assigned by the Railroad Commission of Texas under the current proration order. The May 7 meeting will be in the Rusk building at the office of R. H. Hargrove, chairman of the advisory committee.

A special meeting of Gulf Coast operators was held at the Rice Hotel, Houston, on Saturday, May 2, for the purpose of selecting the above committee, which in turn is to confer and advise with the railroad commission in outlining plans for prorating Gulf Coast fields. About 75 operators and representatives of operating companies were present at the meeting, which had been called at the direction of R. D. Parker, chief supervisor of the oil and gas division of the railroad commission.

The nature of the meeting was explained by Mr. Parker as an effort to hold the production in the Gulf Coast territory to the allowable of 140,000 barrels. The present production has been running on an average of 15,000 to 20,000 barrels a day in excess of the allowable. H. F. Montgomery, acting as chairman of the meeting, with Joyner Cartwright as general secretary, conducted the business through to its conclusion, first calling on C. V. Terrell, chairman of the railroad commission, for a talk outlining the policy of the commission in establishing the allowable for each district.

The advisory committee selected to confer with the commission included: R. H. Hargrove, United Gas System, chairman;

W. A. Belstrom, Mills Bennett Production Company, secretary; F. C. Sealy, representing The Texas Company; Joe Russell, representing Gulf Production Company; Joyner Cartwright, Sun Oil Company; J. A. Hutcheson, Rio Bravo Oil Company; Gillette Hill, Moody-Seagraves-Morgan Company; George Peddy, Humphreys Corporation; Dave B. Harris, Humble Oil & Refining Company; F. J. Rothwell, Yount-Lee Oil Company; and L. A. Layne, representing Layne-Texas Company.

Houston.—The May meeting of the Gulf Coast chapter of the Petroleum Safety Council is being held in the Rice Hotel, Houston, Friday, May 8, in connection with the third annual conference of the Southwestern Safety Conference of the National Safety Council.

This meeting which is being held from 12:00 to 2:00 p.m. has as its principal speakers H. J. Larsen, Wilson Products, Incorporated, who will speak on "Eye Protection," and D. J. Wallace, Mid-Continent Oil & Gas Association, who will outline the proposed safety program for the year. H. N. Blakeslee, safety director of the American Petroleum Institute, will explain the safety work of the Institute.

Fort Worth, Texas.—Planetable ownership map of the entire oil producing area, comprising the Joiner, Kilgore and Longview fields, East Texas, has been prepared by Zingery Oil Map Company, Fair building, Fort Worth, in collaberation with Hudnall & Pirtle, consulting geologists. The latter obtained latest fee and lease ownership from abstract records, and also performed the field survey, with the aid of aerial photography. The map is complete in regard to completed wells and active tests. It is available on cloth, or paper, having a scale of 2000 feet to the inch.

Beaumont, Texas.—Officials of Sun Oil Company, including J. Edgar Pew, vice-president and actively in charge of production and transportation with headquarters at Philadelphia, assembled here late last week for a joint conference with officials of Yount-Lee Oil Company in connection with a proposed 10-inch trunk line that would serve East Texas holdings of the two concerns. The conferences were still under way early this week. Both companies have extensive storage and tanker terminals near Beaumont that would be available for servicing East Texas crude shipments. The proposed trunk line would require about 170 miles of main line.

Abilene, Texas.—Construction work has been started by the Ewmo Oil Corporation, which maintains headquarters here, on a skimming plant that will accommodate about 1000 barrels of crude daily from the shallow pool near Hawley, Jones County, Texas. This concern has one completed well in the 2000-foot sand, and will purchase outside to make up its requirements in operating the plant.

Group picture shown above includes ranking officials of Standard Oil Company of New York, Magnolia Petroleum Company, Magnolia Pipe Line Company and White Eagle Corporation snapped during an inspection trip in the East Texas district April 21. The photo was taken by George Edwin Dorsey, head of the geological department of Magnolia Petroleum Company, who also accompanied the party on the tour. The field trip was topped off by the successful completion by Magnolia Petroleum Company of a big well in the Kilgore field in the presence of the visitors. Reading from left to right: C. N. Black, superintendent of the East Texas district; D. A. Little, vice-president and assistant general manager of Magnolia Petroleum Company; M. J. McLaughlin, director of Magnolia Petroleum Company and assistant manager producing department; Herbert L. Pratt, chairman of the board of Standard Oil Company of New York; R. R. Irwin, president of The White Eagle Corporation; P. E. Haralson, Magnolia Petroleum Company, leaser in the Longview district; C. L. Gladden, assistant manager producing department; B. H. Stephens, vice-president and general manager of Magnolia Petroleum Company; T. A. Swenson, Magnolia Petroleum Company, leaser in the Tyler district; L. L. Marcell, chairman of the board of The White Eagle Corporation; E. E. Plumly, vice-president of Magnolia Petroleum Company and manager refining department; F. S. Fales, vice-president of Standard Oil Company of New York, in charge of the marine department; T. J. Fitch, director of Magnolia Petroleum Company and manager pipe line department; E. R. Brown, vice-chairman of the board of Standard Oil Company of New York, and president of Magnolia Petroleum Company; Haymond Willis, Magnolia Petroleum Company leaser in the Houston district; Michael McKay, Magnolia Petroleum Company, leaser in the Longview district.

Louisiana--Arkansas Field Notes

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Another Producer Completed In Urbana District, Arkansas

Shreveport.—Another producer was completed during the past week in the Urbana district of Union County, Arkansas, in Marine Oil Company's Thompson B-4, Section 10-18-13, in proven limits, flowing 235 barrels of pipe line oil daily by heads through tubing from two feet of sand at total depth of 3576 feet.

A half mile north of production in that area the same company has started rigging up for Union Sawmill 1, SE SE Section 3-18-13. Aside from a wildcat test in Lincoln County, this was the only new operation started in Arkansas during the week. In Lincoln County, L. B. Cook, Trustee, in NE SW Section 5-8s-7w, spudded McGehee Planting Company 1 and late in the week was drilling at 130 feet.

Gusher Bend Oil Company abandoned Adams 1, NW NW Section 24-14-26, Miller County, southwest Arkansas, as a dry hole at total depth of 2680 feet. Hickman and associates' Hogg 1, a wildcat in Section 35-16-17, Union County, which plugged back from total depth of 3328 feet in shale, to test the Nacatosh and made new hole from 2090 to 2140 feet, was abandoned as dry. This test topped Graves sand at 2351 feet and topped red beds at 2779 feet.

Wesson and Bonner's semi-wildcat well, Wesson 1, SW NW Section 22-15-19, Ouachita Parish, at last secured power to pump and was standardized at total depth of 2169 feet pumping three barrels of oil and two barrels of salt water daily; 6⅝-inch casing was cemented at 2083 feet.

Smitherman and McDonald's Bodcaw 1, SE NW NW Section 16-15-22, a wildcat in LaFayette County, which had shown some oil and bailed at 1199 feet. It at first bailed dry with a show of heavy oil and later salt water broke in filling the hole. It is now shut down; 6⅝-inch casing had been set at 1193 feet.

Rodessa District Well Makes 29,748,700 Feet of Wet Gas

Shreveport.—United Gas Public Service Company's Fortner 1, NW NW Section 5-22-16, Caddo Parish, Louisiana, Rodessa district, which extended the upper Trinity wet gas producing area there a mile southwest and to within 200 feet of the Cass County, Texas, line, was gauged during the week ending May 2 at 29,748,700 cubic feet of wet gas with rock pressure of 2325 pounds. Total depth is 5591 feet. No test of the gasoline content of this well has been announced but the three other gassers in this district showed a high gasoline content. Fortner 1 was an old well drilled deeper from 5080 feet. Five-inch casing was cemented at 5430 feet.

The same company is deepening Emmons 1, NE SW Section 27-23-16, a half mile north of gas production, after this test gauged 4,635,000 cubic feet of gas with rock pressure of 2340 pounds at a depth of 5541 feet in the upper Trinity.

Arkansas-Louisiana Pipe Line Company's Werner Sawmill 13, B. C. Jordan Survey, Panola County, East Texas, drilled to the upper Trinity gas zone in that field, was completed during the past week gauging 2,300,000 cubic feet with rock pressure of 1800 pounds in 30 minutes at 4721 feet. United Production Corporation spudded another test for the upper Trinity in Panola County during the week, this being Werner 10, B. C. Jordan Survey.

Second Producer Added In Zwolle East Extension Area

Shreveport.—The recently opened two-mile east extension of the southeast Zwolle field in Sabine Parish, Louisiana, added its second producer during the week ending May 2 when Lyons and Neely's Baird Company 1, SE NE SW Section 1-7-11, was completed at total depth of 2456 feet flowing at an estimated rate of 1000 barrels of oil daily partly pinched in.

This well is a quarter of a mile of the recently completed two-mile extension well, Merritt, Trustee's Byrd 1 in the same section, which had but little marl and chalk and produced from sand. Lyons and Neley's well topped Zwolle marl at 2408 feet, encountered three feet of hard marl, then 20 feet of broken marl and sand and had hard marl to bottom. Six-inch casing was cemented at 2410 feet. Due to a faulty casing the well after completion spasmodically made fresh water along with the flow running at times almost entirely to water. Operators plan to run a short string of 4½-inch casing to correct this.

Six miles west of this well and in a south offshoot of the Zwolle east field W. M. Coates' R. L. Gay 1, SW NW Section 1-7-12, Thursday afternoon, April 30, started making heads of 15 to 20 barrels each which continued until 6 a.m. May 1 when the heads began to form every two hours. Total depth is 2322 feet, marl having been topped at 2222 feet where six-inch casing was cemented. Chalk was topped at 2300 feet and the oil is coming from a break in the chalk, where almost all Zwolle production is found. Late last week two-inch tubing with packer was being run.

East of Production

Three miles east of the most eastern production in Zwolle, Packard Oil & Gas Company abandoned Davis 1, SW SW Section 8-7-10, Sabine Parish, as a dry hole in Zwolle chalk at total depth of 2882 feet, elevation being 337 feet. This well far down the slope of the Zwolle east field structure checked low, topping marl at 2560 feet and topping chalk at 2684 feet. Six and five-eighths-inch casing was cemented at 2636 feet.

Four of North Louisiana's six new locations during the past week were for outpost tests of the Zwolle area. Two locations were made for the southeast offshoot part of the field in Section 3-7-11 and one was made a mile southwest of Zwolle townsite production where a producing well was recently completed. The latter test is Stovall Drilling Company's Nulton 1, Section 1-7-13.

United Public Service Company made another location for a test of the shallow Jackson structure in Concordia Parish where there is now one small commercial gasser. The new test which is rigging up is Hughes 1, Section 49-8n-10e.

Gersen and associates have blocked 14,000 acres in Natchitoches Parish, centering in Township 11, Range 10 west, and plan three tests. Pelican Natural Gas Company (Sam D. Hunter and associates) have blocked 90,000 acres in southern Rapides Parish in central Louisiana centering in Township 1 north and 1 south, Ranges 1 and 2 east, and plant a test soon near the town of Melder.

MISSISSIPPI NOTES

Gulf to Continue Test 60 Miles South of Jackson

Jackson, Mississippi.—Gulf Refining Company is rigging up to drill to at least 4500 feet in Pope 1, NW NE Section 35-8n-16w, Covington County, 60 miles south of Jackson, which was taken over several days ago from Mississippi Gulf Oil & Gas Company after the well had been temporarily abandoned in Wilcox at total depth of 3000 feet. Alternatives against taking the well to 4500 feet are encountering of igneous material, or picking up the Selma chalk and a gas zone therein. It is understood consideration for the test and 17,500 acres surrounding it was 25 per cent of the net profit from any production secured thereon.

Gulf Refining Company which is going to 4500 feet or deeper in Box 1, NW SE Section 11-2n-15e, Clarke County, east central Mississippi, with elevation of 221 feet topped the Tuscaloosan red beds at 4205 feet, immediately under the Eutaw. Late last week this test was drilling red beds at 4225 feet.

Mrs. Ella Rawls Reeder's State Land 1, SW NW Section 25-6-1e, Hinds County, on the north edge of Jackson's city limits, which was started in March, 1925, and drilled intermittently to 2905 feet, was junked and abandoned during the past week. It antedated the discovery of gas in the Jackson field by five years. Elevation was 298.5 feet.

Only one new location was announced in Mississippi during the week, this being Harding and associates' Webb 1, SE NW Section 12-5-1e, Rankin County, in the limits of the southeast part of the Jackson gas field.

Carter Oil & Company and associates during the week spudded Dubard 2, SE NW Section 18-22-4e, Grenada County, north Mississippi, offsetting by 300 feet to the east, Dubard 1, abandoned at total depth of 4012 feet, and late in the week were setting 12½-inch surface casing at 720 feet, total depth being 800 feet. This is expected to shut off a fresh water sand that gave trouble in Dubard 1.

S. A. Hobson and associates who have been shut down for several months in Wilson 1, Section 27-7-1w, Washington County, west Alabama, in limey shale at 881 feet resumed operations recently and late last week were drilling eight-inch pipe at total depth of 916 feet; 10-inch surface casing had been set at 130 feet.

Deep Rock Oil & Refining Company of Tulsa has taken for a month's consideration a block of 93,000 acres held under lease by Oscar Brown and owned in fee by United States Lumber & Cotton Company. This acreage is in south Washington County, Alabama. Brown is now shut down at 700 feet in his second shallow test on this block, which is in Section 25-3-2w. Deep Rock Oil & Refining Company is also reported to have under consideration for lease 30,000 acres just south of this block in north Mobile County.

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Plan Gas Line From Jackson To Hattiesburg, Mississippi

Jackson, Mississippi.—Building of an eight-inch gas line from the Jackson field to Hattiesburg, 90 miles south of here, appeared ready for starting during the past week following posting of a $100,000 guaranty bond with officials at Hattiesburg for construction of the project by Public Service Corporation of Mississippi headed by Frank K. McGehee as president. It is planned to complete the line in 90 days. Gas will be secured in Jackson from Southern Petroleum Company which has two gas producers here. The line, airplane photographic work for the right-of-way of which has already been done, will parallel to a large extent, the Illinois Central Railroad branch from here to Hattiesburg.

Meantime petitions have been started to call an election at Hattiesburg to give the franchise there to the Moran Corporation of Houston, Texas, whose president, W. T. Moran, has posted a $500 check to cover cost of such an election. Moran promises to build a gas line from here to Hattiesburg in 45 days, if given the franchise.

Laurel, a city of 20,000, 28 miles northeast of Hattiesburg, has recently been restrained by the federal appeals court at New Orleans from interfering with Mississippi Gas Company in substituting natural for artificial gas. The litigation arose over the gas company whose artificial franchise had several years to run, recently tieing in with Southern Natural Gas Corporation's Jackson-Mobile trunk to get natural gas for Laurel. The city took it to the federal district court which decided in favor of the gas company and the appeal upheld the lower court.

Casper, Wyo.—The deep test being drilled on Midway Dome structure by Midwest Refining Company is below 6350 feet with no showings of oil or gas reported, but some water evident. Next possible oil or gas producing horizon, the Sundance, is expected at 6550 to 6600 feet. There were two breaks in the Morrison, neither of which carried production.

New Mexico and Rocky Mountain Area

▼ ▼ ▼

Test on Garland Dome to Be Drilled to 4500 Feet

Casper, Wyo.—Material on the ground and rigging up is under way for completion of the deep test on Garland dome, Northwestern Wyoming, started last year by S. C. Ferdig and associates and drilled to 909 feet before shut down. Location is north of the discovery oil well completed by Ohio Oil Company. Rotary equipment is being moved in by Paul Stock of Cody, who has contract with F. T. Griffith, trustee, for the drilling. Well is to be drilled to a total depth of 4500 feet, according to contract.

Utah Southern Oil Company has resumed drilling its Government 3, also on Garland dome, which has been standing as a completed gas well since 1929 with total depth 3769 feet. Well will be deepened to the Madison formation with rotary, objective being expected within the next 500 feet. This is a joint operation with Kinney-Coastal Oil Company.

Badger Basin Wildcat Well Is Rock Mountain Area's Deepest

Billings, Mont.—Deepest producing well ever drilled in the Rocky Mountain States is Resolute Oil Company's wildcat well on the Badger Basin structure, 75 miles southwest of Billings about some 2½ miles south of the Montana-Wyoming state line. The well is last reported flowing by heads at 12-hour intervals, each lasting about 20 minutes and each putting some 200 barrels of high grade crude into storage tanks. Total depth was 8500 feet with drilling deeper progressing slowly because of the increased gas pressure, and the necessity for erecting more storage.

Well is now bottomed in the second Wall Creek sand which was topped at 8494 feet; it is planned to drill 30 to 40 feet into this horizon. First Wall Creek sand produced 30 or 40 barrels per day, with an open flow of 1,250,000 cubic feet of gas with a pressure around 2000 pounds per square inch.

Billings, Mont.—Ohio Oil Company has two crews of about 100 men each at work at both ends of its pipe line project from the Dry Creek gas field, in Carbon County, southern Montana, to Bozeman where another 100 men are at work constructing the city distribution system. Ten-inch pipe is arriving along the right-of-way from the A. O. Smith Corporation's Milwaukee plant, and trucking contractors are busy stringing it. The river crossings over four streams are completed. The trunk line will be 113 miles long and will consist entirely of 10-inch pipe. Laterals are to be laid to supply towns along the right-of-way.

Glenrock, Wyo.—A conservation program which will permit drilling no more wells in the Big Muddy oil field by major operators, and only a minimum production from the newly-proved Lakota sand until the general over-production in the country is done away with or the oil is needed in the Rocky Mountain states, was agreed upon by state officials and operators on April 25. Companies represented were the Ohio Oil Company, The Texas Company and Continental Oil Company.

Magnolia Takes Over Joint Piceance Creek Dome Test

Denver, Colo.—Magnolia Petroleum Company has announced that it will have charge of another joint test on the Piceance Creek dome, Rio Blanco County, Colorado, and that road is now being built to the location a half mile east of the well started in 1929 by White Eagle Oil Corporation and completed by Magnolia Petroleum Company after it had taken over the former.

That test was a joint operation with Argo Oil Company. Now the holdings on the structure have been unitized and among those participating in the test will be Midwest Refining Company, Snowden & McSweeney, and E. P. Earl in addition to Magnolia Petroleum Company, and royalty owners in the district. The land blocked up included some 61,400 acres. The first test on the structure was drilled to 5130 feet, but was not then an adequate test of all possible formations. It was plugged back and completed as a gas well at 2985 feet, good for 1,876,000 cubic feet.

Casper, Wyo.—Considerable interest has been manifest in oil circles here in the discovery by Phillips Petroleum Company of a very good showing of oil with some gas at 375 feet on the Middle Creek structure, Niobrara County, Eastern Wyoming. The test is the first of a series of core drilling operations the company has planned to outline the structure; Sundance was the first expected objective between 700 and 800 feet.

Casper, Wyo.—North Central Gas Company (New York Oil Company) has recently announced that it has leased a part of the old Sinclair oil pipe line in Wyoming and Western Nebraska from its present owners, Standard Oil Company (Indiana), and that it will use the line to transport natural gas from its Glenrock, Wyoming, terminal to communities along the pipe line. Company will utilize about 175 miles of the line immediately, and perhaps more of the Nebraska part later on. Laterals are to be laid from Guernsey, Wyoming, to Wheatland and Laramie with systems at intervening towns, and from Bridgeport to Alliance, Nebraska.

Casper, Wyo.—A unit plan of operation for the Billy Creek gas field, in Johnson County, Wyoming, has been agreed upon by the land and geological departments of the state and the mineral leasing division of the U. S. Geological Survey.

Great Falls, Mont.—The interests identified with Louis B. O'Neil, it is officially reported, have ordered the location of four wells in the Cut Bank district, Northern Montana, and will let contracts immediately for drilling these tests. The O'Neil interests will have to drill about 20 wells altogether for the purpose of developing a gas supply for the pipe line projected by Montana Power Company (Anaconda Copper) to cities in the southwestern part of the state, including Butte, Anaconda, Bozeman and Helena. Pipe has been ordered for this line and work is to be started laying it by July of this year. Line is to be 20-inch for the most part, although the northern end will probably be 22-inch. Average cost of the wells will be about $25,000 each, exclusive of rentals, overhead, etc. Pipe line will cost about $12,000,000.

Completions for Past Week in U. S. Fields

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CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
LONG BEACH—		
Woods-Calaham Oil Co., No. 2	40	7500
MT POSO—		
General Pet. Corp., Heisen 14	150	1670
Heisen 29	160	1690
PLAYA DEL REY—		
The Ohio Oil Co., Gun Club 10	250	3905
VENTURA AVENUE—		
Shell Oil Co., Taylor 67	1100	4500
Associated Oil Co., Lloyd 57	5500	8823

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Blaksley & Wentz, Holliday 2, csl sw ne 24-27-4e	¶2¾	1690
COWLEY COUNTY—		
Tom Fine et al's Boyd 1, nw c ne 32-32-4e	*	3163
ELK COUNTY—		
Ferguson et al's Ferguson 1, (owd) sw ne sw 23-30-8e	135	2911
McPHERSON COUNTY—		
Palmer, Phillips Pet. Shell's Winn 1, ne nw sw 7-20-1w	4840	2978
W. C. McBride, Inc., Finkle 1, c nw nw 23-19-2w	¶9	2948

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
BRYAN COUNTY—		
W. A. Johnson Ussery 1, se c 14-6s-7e	*	485
CHEROKEE COUNTY—		
Weaver & Proctor, Benge 1, sw c ne ne nw 8-14-21e	*	960
COMANCHE COUNTY—		
Max Pray, Kline 1, ne c 8-3n-10w	*	2882
COTTON COUNTY—		
Gilbert & Lowry, Forney 1, c se se 4-2s-11w	*	2245
CREEK COUNTY—		
Emarthla Oil Co., Hodge 1, sw c nw 29-17-10e	*	3100
J. M. Scott et al, Wacoche 1, sw c ne ne 17-17-11e	*	2918
Troutt et al' Grayson 2, sw c nw ne 1-19-10e	*	2006
Atlantic Oil Prod. et al, Pooling agreement 1, sw c nw 26-14-10e	235	3213
Olean Petroleum Co., Big-pen 3, (owd) sw c ne ne 36-15-7e	145	3789
R. F. Moore et al, Thompson 1, se c nw 17-17-8e	¶2¾	3609
HUGHES COUNTY—		
Minnehoma Oil Co., Brown 2, se ne ne 17-7-8e	¶41	2905
Holmes & Jarvis, Narcome 1, se nw sw 9-7-8e	¶25	2940
JEFFERSON COUNTY—		
W. H. Smith, McClary 1, se nw ne 18-4s-8w	*	2667
LOVE COUNTY—		
Batson, Starritt and Autry, Autry 1, sw nw nw 26-6e-2e	*	530
MARSHALL COUNTY—		
W. E. Simms et al, Sparlin 1, nw c ne 2-6s-6e	*	902
MUSKOGEE COUNTY—		
Braman Oil Co., Jackson 3, sw c nw 17-13-16e	¶1 & 5	2077
Braman Oil Co., Jackson 4, nw c sw nw 17-13-16e	¶¼	1468
C. W. Brown, Smith 1, sw c nw 14-15-15e	¶¼	754
H. L. Jolly, Spaulding 2, ne c se se ne 8-15-18e	¶½	845
OKFUSKEE COUNTY—		
Foster Development Co., Holmes 1, sw c se 13-11-10e	*	3859
McMann Oil Co. et al, Johnson 1, nw sw sw 28-12-10e	*	3180
OKLAHOMA COUNTY—		
Empire O&R, Gustine 1, sw c ne 1-11-3w	290	6490
Champlin O&R, Seal 2, nw c sw sw 2-11-3w	275	6327

For Tabulation and Comparison See Market Section

Company, Well and Location	Initial Production Bbls.	Depth
Phillips Pet., Othenin 1, nw c sw ne ne 3-11-3w	16850	6272
Forrester 1, cnl se se ne 3-11-3w	7100	6266
Mid-Texas Oil Co., Aungust 1, csl ne ne nw	17100	6312
I.T.I.O., Pasedena Heights 5, ne c sw 14-11-3w	155	6505
PITTSBURG COUNTY—		
Red Bank Oil Co., Campbell 1a, c nw, 6-6n-14e	*	758
PONTOTOC COUNTY—		
Clark & Cowden, Brown 2, se c ne 12-4n-7e	¶2	1933
Smith & Lee, Wade 4, se c ne 3-4n-7e	*	650
POTTAWATOMIE COUNTY—		
J. A. Hull Co., Townsend 2, nw se se 22-6-3e	745	3530
Payne Drlg. Co. et al, Bullock 6, ne sw ne 22-6-3e	1125	3587
SEMINOLE COUNTY—		
Mid-Kansas O&G and Ramsey Pet. Co., Davis 5, nw se nw 30-8-8e	925	3050
Magnolia Pet. Co., Wood 3, sw ne sw 29-6-6e	800	2805
Reed 2, ne nw nw 26-5-7e	¶30	2580
Neal & Milton, Thomas 1 (owd) nw ne sw 9-6-7e	*	3035
STEPHENS COUNTY—		
Taylor et al, Skelton 1, ne sw sw 23-1s-7w	*	1582
WAGONER COUNTY—		
Wm. LaPierre, Gregory 1, ne c se nw 19-17-17e	¶6½	1232

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
GREENE COUNTY—		
Manufacturers Light & Heat Co., Scott 1	¶¼	3647
Peoples Natural Gas Co., Haines 1	*	3152

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
SCHUYLER COUNTY—		
Crescent Producing Co., Turner 1	¶3½	1740
Sone-Kemp, Gordon 1	¶3	1375
J. Cunningham, Eveland 1	¶4	1729
Hawk 1	¶3½	1718
Dusenerg 1	¶3	1848
Belmont Quadrangle Corp., Price 1.	*	2195
Quadrangle Corp., Denning 1	¶3	2083

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
HARRISON COUNTY—		
J. W. Johnson & Co., Morris 1	2	3079
Reserve Gas Co., Scott 343	¶½	3124
WAYNE COUNTY—		
Wayne United Gas Co., Wilson Hrs. 44	¶¼	1890
Chartiers Oil Co., Strueber 1	2	4410
MARSHALL COUNTY—		
Manufacturers Light & Heat Co., Chambers 2994	¶1	2724
Doman & Co. 3470	¶1	1750
KANAWAH COUNTY—		
United Fuel Gas Co., Sunday Creek Coal 4277	¶½	2443
Sunday Creek Coal 4268	¶½	2453
GILMER COUNTY—		
F. G. Davis & Co., Hardman 1	*	....
Bowser Oil Co., Ralston 2	*	1865
BOONE COUNTY—		
The Pure Oil Co., Federal Coal Co. 50	¶¼	3357
CABELL COUNTY—		
Wilson & Nowery, Baumgardner 2.	¶¼	3023
CALHOUN COUNTY—		
B. J. Crawley, Pell 1	¶¼	3023
JACKSON COUNTY—		
J. H. Starr & Co., Starr 1	¶¼	4652

Company, Well and Location	Initial Production Bbls.	Depth
LINCOLN COUNTY—		
United Fuel Gas Co., Miller 4312	¶¼	2343
TYLER COUNTY—		
Manufacturers Light & Heat Co., Parks 3449	¶1	2121
ROANE COUNTY—		
Parsons Oil & Gas Co., Rader 1	*	1852

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
SENECA COUNTY—		
Sandusky Gas Co., Betts Hrs. 2	¶¼	....
Doran 2	¶¼	....
HURON COUNTY—		
Gebhart-Fraker Oil Co., Verberg 1.	¶1	1049

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
COSHOCTON COUNTY—		
Preston Oil Co., Mercer 1	*	3273
Little 1	6	3123
Tatten 1	¶1	3171
MEDINA COUNTY—		
Ohio Fuel Gas Co., Bowman 1	*	3160
Edson Sons Co., Packard 13	5	377
Barnhart & Co., Grissinger 1	¶¼	2788
ATHENS COUNTY—		
Bode & Co., Devore 2	5	1075
Latonia Oil & Gas Co., Robinet 1	*	1132
STARK COUNTY—		
East Ohio Gas Co., Tom O'Shanter Golf Course 1	¶¼	4433
Harris 2	¶5¼	4417
ASHLAND COUNTY—		
Ohio Fuel Gas Co., Welsh 2	¶¼	....
LORAIN COUNTY—		
Ohio Fuel Gas Co., Lehman 2	¶¼	548
MEIGS COUNTY—		
Ohio Fuel Gas Co., Carl 1	¶¼	1612
CUYAHOGA COUNTY—		
Dillon & McFredericks, Fetterman 1	*	3175
HOLMES COUNTY—		
Ohio Fuel Gas Co., Miller 1	*	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
FLOYD COUNTY—		
Southeast Gas Co., Bradley 8	¶1	....
Collins 1	¶1½	....
Preston 2	¶2	....
Allen 2	¶2	....
OHIO COUNTY—		
Brenner, Adams & Co., Medcalf 1	7	400
ESTILL COUNTY—		
Raydure, Benton & Co., Bishop 6	¶½	....
LAWRENCE COUNTY—		
Garrison & Townsend, Dobyns 23	5	....
LEE COUNTY—		
James G. Cooper, Day 6	1	....

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
RICHLAND PARISH—		
United Gas Pub. Serv. Co., Earle 3, 25-17-5e	¶42	2430
UNION PARISH—		
Nemours Corp., Pace & Handy 1, 35-22-3e	3	2183
BAYOU BLUE—		
Standard of La., Schwing 1-A	*	6007
BAYOU BOUILLON—		
Humble O&R Co., Woodward 1	*	6471
BLACK BAYOU—		
Shell Pet. Corp., Black Bayou State 2	*	6463
LEESVILLE—		
The Texas Co., Leesville 2	1475	3628
SULPHUR—		
Union Sulphur Co., Fee 762	*	9250
VINTON—		
Gulf Prod. Co., Gardner Fee 6	700	3550

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
UNION COUNTY, (Smackover)—		
Root Ref. Co., Calloway 3, 4-16-15 (sec. comp)	7	2290
UNION COUNTY, (Urbana)—		
Marine Oil Co., Thompson B-4, 10-18-13	235	3576

(Continued on page 132)

Permits Granted for New Wells

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CALIFORNIA

HUNTINGTON BEACH—Armor Pet. Co., No. 1, 34-5-11. P. H. Orborne, No. 1, 10-6-11. Republic Pet. Co., H. B. 1, 10-6-11.

KETTLEMAN HILLS—Powell-Stockton Investment Co., No. 1, 32-22-19.

LOS ANGELES COUNTY—W. S. Ewert, No. 1, 29-4-13; No. 2, 20-4-13; No. 3, 20-4-14; No. 4, 20-4-13.

LOST HILLS—Universal Consolidated Oil Co., No. 17-D, 30-26-21.

ROUND MOUNTAIN — Golden Bear Oil Co., No. 6, 6-28-29.

SAN DIEGO COUNTY — Itasca Pet. Co., No. 1, 33-18-1.

TULARE COUNTY — Fred H. Gholson, Chamboy 1, 3-23-27.

VENTURA AVENUE—Associated Oil Co., Lloyd 83, 26-3-23; Lloyd 129, 27-3-23.

VENTURA COUNTY—Nelson Jensen, Hansen, Hausen 1, 24-1-20.

KANSAS

LYON COUNTY—Sheedy et al's Bush 1, c w½ se 10-20-11e.

McPHERSON COUNTY—Rosenthal et al's Knudson 1, sw c se 23-19-2w.

MORRIS COUNTY—Borden et al's Atkinson 1, sw c se 18-18-7e.

MORTON COUNTY—Texas Interstate Pipe Line Co.'s Simmons 1, c se 16-32-29w.

RICE COUNTY—Solar Oil Co.'s Roelfs 1, se c nw 3-19-10w.

STEVENS COUNTY—Texas Interstate Pipe Line Co.'s Loflin 1, c se 1-33-38w. Texas Interstate Pipe Line Co.'s Teyer 1, c sw 2-33-38w; Texas Interstate Pipe Line Co.'s Crane 1, c nw 16-33-38w.

OKLAHOMA

CARTER COUNTY—Carter Oil Co., Robb 2, sw c nw 19-1s-2w.

COAL COUNTY—Mid-Western Oil & Gas Co., Gumm 1, c sw nw, 30-3n-10e.

CREEK COUNTY — H. U. Bartlett et al, Coonrod 1, sw c 8-19-9e.

HUGHES COUNTY — Blackwell O&G, Holmes 1, sw ne sw, 9-7-8e.

MUSKOGEE COUNTY — E. Price et al, Green 1, c sl sw, 20-14-17e.

OKFUSKEE COUNTY—Wheeler et al, Deer 1, nw c ne, 26-10-8e.

OKLAHOMA COUNTY—Phillips Petroleum and Shell, Egrmier 1, cwl sw sw sw 23-11-3w.

OKMULGEE COUNTY—Murta and Sherry, Fulson 1, ne c sw, 21-16-11e.

POTTAWATOMIE COUNTY—Twin State Oil Co., Archer 5, sw ne se 22-6-3e.

SEMINOLE COUNTY—Magnolia Pet. Co., Wood 4, nw ne sw 29-6-6e.

WAGONER COUNTY — J. P. Flannagan Showalter 1, cwl se sw 20-16-19e.

LOUISIANA

BOSSIER PARISH—

Flint River Oil Co., Plain Dealing, La., DeMoss 1, 22-22n-13w, 374 ft s and 150 ft e of nw cor se¼ of nw¼. Harry I. Morgan, Shreveport ElDorado Pipe Line Co., Kendricks A-13, 22-19n-11w, 1004 ft n and 661 ft w of se cor of sec.

CADDO PARISH — Shreveport Oil Corp., Shreveport, La., Muslow B-2, 32-21n-15w, approx 1000 ft s and 300 ft e of nw cor of sec.

CONCORDIA PARISH—United Gas Public Service Co.,, Houston, Texas, Hughes 1, 49-8n-10e, 660 ft s 45° e 660 ft w 63° 30 ft e of most westerly cor of sec.

IBERIA PARISH—Jefferson Lake Oil Co., New Orleans, La., Lake Peigneur 12, 58-12s-5e, 3100 ft due w from ne cor of sec.

IBERVILLE PARISH—Std. Oil Co. of La., Shreveport, La., Schwing Lbr. & Shgle Co. 6, 74-9s-10e, 755 ft n and 545 ft w of se cor of sw¼.

SABINE PARISH — H. H. Alvord, Jr., Shreveport, La., Sabine Lbr. Co. 1, 11-7n-12w, 190 ft s and 250 ft w of ne cor se¼ of nw¼. Pelican Nat. Gas Co., Shreveport, La., 4 L Co. 9, 3-7n-11w, 990 ft w and 655 ft n of se cor of sw¼. Sabine Prod. Co., Shreveport, La., Pearce 2, 10-7n-11w, 848 ft n and 530 ft w of se cor se¼ of nw¼. The Texas Co., Shreveport, Stille 3, 33-8n-11w, 330 ft s and 330 ft e of nw cor of sw¼.

UNION PARISH—Nemours Corp., Shreveport, La., H. E. McCough 1, 24-22n-3e, 770 ft n and 651 ft e of w¼ cor of sec.

For Tabulation and Comparison See Market Section

TEXAS

ARCHER COUNTY—J. J. Moran, Wichita Falls, A. J. White, 160, 1, B 11, J. W. Harris sur, 1716 ft from e and 150 ft from n line. L. T. Burns, Wichita Falls, Oil Inv. Co., 80, 5, B 125, Harris sur, 450 ft from n and 1050 ft from e line. C. W. Clark, Wichita Falls, A. J. Lowe, 40, 1, B 15, Crawford sur, 881 ft from e and 1050 ft from s line. Geo. B. Hamilton et al, Olney, E. Bearden, 60, 1B, B 2, J. McLyman sur, 150 ft from n and 750 ft from w line.

BELL COUNTY—O. O. Alford, Fort Worth, A. L. Keifer, 20, 1, Woodford sur, 150 ft from s and w lines.

BASTROP COUNTY — Smith & Barnes, Wealdor, F. Marberger, 288, 1, King & Millett sur, 480 ft from w and 1360 ft from s line.

BORDEN COUNTY—Geo. Goodrum, Colorado, Conrad, 640, 2, S 55, B 25, Lavaca Navig. sur, 450 ft from n and 2500 ft from e line.

COLEMAN COUNTY—W. L. Jackson et al, Burkett, W. C. Henderson, 50, 1 ,B 5, Wickson sur. Burkett O&G Co., Brownwood, B. W. Webb, 57, 1, S. 178, H. Oodle sur, 2882 ft from w and 300 ft from s line. A. B. Phillips, Coleman, G. M. Gray, 40, 1, S 172, M. Izod sur, 600 ft from n and 1676 ft from w line. P. B. Snook, Santa Anna, W. C. Henderson, 300, 1, S 79, B 2, ET Ry. sur, 150 ft from s and w lines. McGaffey & Mitchell, Coleman, Overall, 50, 2, S 10, B 1, GH&H sur, 750 ft s of center of n line; B. W. Webb, 60 1, S 178, H. Odle sur, 150 ft from s and w lines. Eastland Oil Co., Fort Worth, J. L. Stewardson, 80, 1, No. 82, H. A. Turner sur, 150 ft from n and 300 ft from e line. Texas American Synd., Dallas, N. D. Newton, 300, 4, B 519, San Augustine sur, 2800 ft from e and 575 ft from s line.

CHAMBERS COUNTY—Humphreys Corp., Houston, T. S. Fitzgerald, 10, 2, H. Griffith sur, 300 ft from n and 65 ft from e line. Yount-Lee Oil Co., Beaumont, Winfree 3, W. D. Smith sur, 1030 ft from s and 732 ft from e line. Sun Oil Co., Beaumont, J. H. Smith, 20, 3, W. D. Smith sur, 50 ft from s and 303 ft from e line. Mills Bennett Prod. Co., Houston, Fisher, 23, 4, Wm. Bloodgood sur, 300 ft from w and 80 ft from n line.

CARSON COUNTY—J. M. Skaggs, Amarillo, H. R. Kees, 80, 1, S 1, B 4, I&GN sur, 330 ft from n and e li sw¼.

CASS COUNTY—Olds & Smith, Camden, Ark , J. E. Anthony, 349, 1, J. C. Byers sur, 1010 ft from n and 2212 ft from e line.

CHEROKEE COUNTY—McDonald Bros., Mt. Pleasant, W. A. Newton, 400, 1, J. Pineda sur, 1075 ft from e and 330 ft from s line.

CORYELL COUNTY—Coryell County Oil Corp., Fort Worth, J. Q. Davidson, 273, 1, N. Roberson sur, 800 ft from n and 1900 ft from w line.

DUVAL COUNTY—Magnolia Pet. Co., Dallas, W. Benavides, 200, 1, S 172, GC&SF sur, 330 ft from n and w lines; J. O. Wilson, 1920, 3, S 134, GB&CNG sur, 400 ft e of No. 2.

EASTLAND COUNTY — O. R. Cooper, Breckenridge, V. V. Cooper, 108, 1, B 4, H. Kendrick sur, 150 ft from n and 800 ft from e line.

GREGG COUNTY—Manziel & Kouri, Gladewater, New Hope Baptist Church, 1, 1, M. Dillard sur, 60 ft from n and e lines. Pilot Oil Co., Dallas, M. Magrill, 10, 1, D. Sanchez sur, 230 ft w of center of e line. Mid-Kansas O&G Co., Shreveport, E. R. D. Bivins, 20, 1, W. P. Chisum sur, 150 ft from n and e lines. Sun Oil Co., Dallas, G. W. Tate, 64, 1, W. H. Castleberry sur, 150 ft from n and e lines. Julius Livingston, Tulsa, M. M. Cottom, 33, 1, W. P. Chisum sur, 150 ft from e and 165 ft from s line. C. S. Thomas, Houston, C. B. Everett, 20, 1, J. Ruddle sur, 315 ft from n and 200 ft from e line. R. Trimble, Longview, G. Davis, 4, 1, Chisum sur, 150 ft from n and w lines. Valentine Oil Co., Longview, Goyne-Hughey, 2½, 1, M. Van Winkle sur, 150 ft from s and e lines. H. W. Elliott, Ft. Worth, H. C. McNeeley, 8, 1, W. P. Chisum sur, 188 ft from e and 140 ft from s line. J. R. Smith, Properties, Longview, J. B. Doby, 20, 1, Wm. Castleberry sur, 275 ft from e and 150 ft from s line. Merren & Mays, Shreveport, W. Hawkins, 7, 1, W. P. Chisum sur, 150 ft from s and e lines. Gulf Prod. Co., Houston, S. C. Fishburn, 200, 1, F. W. Johnson sur, 330 ft from s and e lines. A. Muckleroy, 100, 4, J. S. Caruthers sur, 330 ft from n and w lines. A. Spear, 96, 2, M. Van Winkle sur, 295 ft from s and 330 ft from w line. M. Charles, 79, 1, W. P. Chisum sur, 330 ft from s and e lines. L. D. Crim, 70, 1, W. P. Chisum sur, 330 ft from n and e lines.

HARRISON COUNTY—Ryan Consolidated Pet. Corp., Tulsa, H. H. Key, 160, 1, E. Carroll sur, 562 ft from e and 800 ft from s line.

IRION COUNTY—P. I. Fox, Mertzon, H. Horney, 40, 1, S 2, B 3. H&TC sur, 200 ft from n and 225 ft from w line se¼ of nw¼. M. E. Davis, Pittsburgh, Penna., Sugg, 640, 1, S 3081, B 28, H&TC sur, 925 ft from w and 1560 ft from s line.

JONES COUNTY—A. Urban, Abilene, R. Riddle, 640, 1, S 2, B 4, A. W. Hill sur, 150 ft from e and 300 ft from s line.

JACK COUNTY—Hughes & Quinlavan, Mineral Wells, T. Humphreys, 104, 1, S. Graves sur, 250 ft from n and 200 ft from w line.

KERR COUNTY—Herbert Oil Co. of Texas, Fort Worth, J. D. Witt, 160, 1, S 1923, W. H. Hamilton sur, 1320 ft from n and 1220 ft from w line.

LIMESTONE COUNTY—W. H. Mahon et al, Fort Worth, S. R. Ellison, 60, 1, J. Searight sur, 150 ft from n and w lines.

LOVING COUNTY—H. W. Martin, Porterville, Ramsey, 80, 2, S 83, B 1, W&NW sur, 330 ft from nw and ne line.

McLENNAN COUNTY — Mahon & Wilbanks, Fort Worth, E. M. Wilbanks, 80, 1, S 27, B B, J. A. Manchaca sur, 720 ft from w and 570 ft from s line.

MARION COUNTY — Sheldon & Emerson, Tyler, McNeil, 781, 1, R. B. Fowler sur, 800 ft from n and 400 ft from e line.

MORRIS COUNTY—Dumas Pet. Co., Dallas, T. G. Ball, 71, 1, A. S. Young sur, 1056 ft from e and 248 ft from s line.

NACOGDOCHES COUNTY—Paul Vitek et al, Fort Worth, M. B. Hayter, 80, 1, M. de S. Coy sur, 150 ft from n and 1200 ft from w line.

PALO PINTO COUNTY—Brazos River Gas Co., Mineral Wells, Edmondson, 17, F. H. Gray sur, 1500 ft nw of No. 8.

PECOS COUNTY—Cosby Prod. & Royalty Co., Fort Worth, H. H. Tippett, 160, 1, S 40, B 194, GC&SF sur, 990 ft from s and w lines.

RUSK COUNTY—Anderson & Co., Inc., Ft. Worth, A. Thrash, 17, 3, M. J. Pru sur, 750 ft from n and 150 ft from w line. Mid-Kansas O&G Co., Shreveport, W. P. Moore, 135, 1, H. Wiggins sur, 330 ft from s and w lines. Houston Oil Co., Houston, D. Wells, 25, 2, H. Hobson sur, 200 ft from s and w lines. T. P. Coal & Oil Co., Fort Worth, C. O. Christian, 20, 1, M. McCabe sur, 300 ft from w and 273 ft from n line. R. T. Belcher, Tyler, A. Thrash, 8, 1, M. J. Pru sur, 150 ft from s and 300 ft from e line. Westexas Oil & Royalty Corp., & F. H. E. Oil Co., Fort Worth, E. C. King, 129, 1, J. C. Morrison sur, 500 ft from w and

325 ft from s line. Devonian Oil Co. & Gulf Prod. Co., Houston, R. A. Motley, 424, 2, Wm. Killen sur, 660 ft s of No. 1. Stantex Pet. Co., Oklahoma City, J. R. Brightwell, 11, 1, R. Smith sur, 150 ft from n and 186 ft from e line. Woodley Pet Co., Shreveport, L. Walker, 45, 1, Wm. Robinson (Gregg county). J. Ladd, 55, 2, I. Ruddle sur, 531 ft from n and 150 ft from e line. G. Thompson, 10, 1, R. E. Winn sur, 150 ft from n and 218 ft from w line. Sinclair O&G Co., Fort Worth, W. H. Rich, 363, 1, Van Sickle sur, 2530 ft from w and 660 ft from ne line. F. B. Wilson, 125, 1, R. McAnulty sur, 354 ft from e and 330 ft from n line. Mid-Kansas O&G Co., Tulsa, S. H. Moores, 193, 3, M. J. Pru sur, 185 ft from e and 880 ft from n line. Snowden & McSweeney Co., Fort Worth, F. Bean, 39, 1, H. Hobson sur, 150 ft from s and 479 ft from e line. C. W. Williams, Tyler, Bradbury, 28, 1, R. Smith sur, 150 ft from n and e lines. H. L. Hunt, Henderson, C. Young, 126, 3, M. J. Pru sur, 150 ft from e and 792 ft from n line. C. Young, 10, 2, M. J. Pru sur, 185 ft from w and 161 ft from n line. Magnolia Pet. Co., Dallas, J. C. Bradberry, 90, 2, R. W. Smith sur, 250 ft from n and 270 ft from w line. J. W. Olvey, El Dorado, L. D. Crim, 20, 4, R. E. Winn sur, 150 ft from s and e lines. British American Oil Prod. Co., Tulsa, W. A. Ector, 11½, 1, R. W. Smith sur, 180 ft from e and 150 ft from s line. Sinclair O&G Co., Fort Worth, D. W. Marsh, 436, 1, L. Williams sur, 330 ft from s and e lines. Karona Pet. Co., Corpus Christi, Peterson, 25, 3, R. E. Winn sur, 150 ft from s and e lines. Jim Pollard, Shreveport, C. Young, 55, 1, M. J. Pru sur, 150 ft from s and e lines; 2, 150 ft from n and e lines. Gulf Prod. Co., Houston, R. Russell, 40, 1, R. W. Smith sur, 150 ft from n and w lines. W. P. Keeling, A, 53, 2, F. Cordova sur, 185 ft from s and 330 ft from w line; 1, 168 ft from e and 268 ft from n line.

SMITH COUNTY — J. H. Brogan et al, Tyler, T. O. Wright, 4½, 1, 150 ft from s and e lines. Dumas Pet. Co., Dallas, S. S. Cook, 35, 1, J. Jordan sur, 150 ft from s and e lines. Sun Oil Co., Dallas, J. D. Henson, 216, 1, J. Vargas sur, 238 ft from e and 250 ft from n line.

SHACKLEFORD COUNTY—Dickey Bros., Cisco, E. Webb, 320, 4, 576, TE&L sur, 300 ft nw of No. 2. A. A. Hutton, Snyder, H. H. Horton, 60, 1, 818, TE&L sur, 150 ft from w and 450 ft from s line.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, F. B. Smith, 80, 6, J. Walling sur, 250 ft from n and 200 ft from e line. R. C. Crim, 57, 3, N.C.S.L. sur, 250 ft from s and e lines. R. L. Wells, 51½, 5, M. Gross sur, ne corner. A. G. Maxfield, 107, 2, N.C.S.L. sur, 250 ft from s and w lines. W. H. Cook, 86, 3, M. Gross sur, 200 ft w of center of e line. J. T. Thompson, 50, 11, M. Gross sur, 303 ft from n and 481 ft from e line. L. R. Barton, Dallas, W. P. Nixon, 510, 1, M. J. Cardena sur, 450 ft w of center of e line. Humble O&R Co., Houston, A. J. Fowler, 95, 2, Wm. Daniel sur, 175 ft from w and 150 ft from s line.

WICHITA COUNTY—Flake & Harmon, Wichita Falls, K. B. Harmon, 100, 1, S 53, RRVL sur, 750 ft from e and 1129 ft from s line. Flynn Bros., Electra, Woodard, 40, 2, B 248, Wag. Col. sur, 750 ft from e and 480 ft from s line. S. H. Walton, Electra, P. G. Krohn, 40, 1, 226, TE&L sur, 500 ft from s and e lines.

WOOD COUNTY—Deep Rock Oil Co., Fort Worth, M. Smith, 49, 1, L. Johnson sur, 350 ft from s and e lines.

YOUNG COUNTY—W. M. Moore, Wichita Falls, A. Alsup, 60, 1, 192, TE&L sur, 150 ft from s and e lines. Putnam Oil Co. & Panhandle Refg. Co., Wichita Falls, S. R. Jeffrey, 80, 1, 52, TE&L sur, 933 ft from n and w lines of sec. Clarco Oil & Refg. Co., Fort Worth, J. M. Morgan, 400, 2,, TE&L sur, 933 ft from n and 1050 ft from w line. Texas Co., Wichita Falls, J. K. Jeffrey, A, 2, 42, TE&L sur, 450 ft from n and 150 ft from w line. Wise, Jackson & Devonian Oil Co., Graham, C. A. Brown, 80, 1, W. Rowe sur, 450 ft from n and 750 ft from w line. Floyd Ard, Jr., Wichita Falls, J. J. Perkins, 10, 2, 22, TE&L sur, 750 ft from e and 150 ft from s line. King Royalty Co., Wichita Falls, J. F. Larimore, 160, 15, 2246, TE&L sur, 466 ft from n and 1350 ft from e line; 17, 450 ft from e and 1379 ft from n line. Jack Harris, Olney, A. J. Cartwright, 81, 1, G&BN sur, 1320 ft from w and 150 ft from n line. S. H. Simmons, Loving, J. Kennedy, 190, 1, 1936, TE&L sur, 660 ft from e and 785 ft from n line. Texas Co., Wichita Falls, E. P. Tatum, 160, 1, 1908, TE&L sur, 450 ft from n and 1898 ft from w line. W. E. Barnhard, Wichita Falls, Belknap, 40, 1, 8, TE&L sur, 566 ft from n and 933 ft from e line. Primrose Refg. Co., Wichita Falls, T. J. Routon, 40, 1, 266, TE&L sur, 450 ft from n and 750 ft from w line.

▼ ▼ COMPLETIONS ▼ ▼

(*Continued from page* 130)

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
LONGVIEW FIELD—		
E. E. Eslick-Little et al, W. R. Nicholson 1	10,000	3676
Marlan Oil Synd., School (2-ac) 1	12,000	3630
John W. Olvey & Sample, Rodden 1	8000	3590
Sultan Oil Co. & Daniels' Spring Hill Church 1	8000	3620
KILGORE FIELD—		
British-American Oil Co., Thompson 4	5000	3732
Burton Drlg. Co. et al, Thompson 4	7500	3652
A. R. Byrd & Ed. B. Hopkins, Watson 1	12,000	3577
Cordova Union Oil Corp. et al, Christian 5	9000	3708
Christian 6	8000	3700
Danciger O&R Co., C. Bean 1	15,000	3685
C. Bean 2	12,000	3677
C. Bean 3	10,000	3699
W. H. Dunning & J. H. Markham, Peterson 3	10,000	3673
East Texas Ref. Co., D. Wills 1	12,500	3692
Gulf Prod. Co., Griffin 4	10,000	3655
Griffin 6	15,000	3657
W. A. Hindman 1	8000	3737
Gulf & Devonian Oil Co., A. Laird 1	15,000	3677
A. Laird 2	15,500	3675
Houston Oil Co., C. Bean 1-B	6000	3656
W. P. Brightwell 4	6000	3687
Humble O&R Co., L. D. Crim 17	9000	3630
S. S. Laird 2-B	2500	3661
Ed. M. Jones-Houston Oil Co., Peterson 2-A	10,000	3760
N. W. Hunter et al, Buntyn 1	10,000	3755
K. & P. Oil Co., Brightwell-Price 1	10,000	3720
Lewis Prod. Co. & Selby O&G Co., D. Willis 1	15,000	3687
Magnolia Pet. Co., C. C. Still 1	15,000	3665
Chas. L. McMahon-McCulloch-British-American, D. Wills 1	13,000	3663
McMann et al, S. S. Laird 1	6000	3662
Navarro Oil Co., Brightwell 2	5000	3689
Navarro-H. L. Brown & Hill, Peterson 1	9500	3750
H. E. Oliver-H. L. Brown-Republic Prod. Co., Hindman 1	10,000	3650
Republic Prod. Co. & Louis Hart, Haines 1	12,000	3643
John W. Olvey & Sample, W. R. Crim 3	6000	3712
H. R. Smith & Gulf Prod. Co., Peterson 5	9600	3690
Stanolind O&G Co., Ben Laird 4	6000	3753
Turman Oil Co., W. P. Brightwell 1-A	15,000	3723
W. P. Brightwell 2-B	7500	3691
W. D. Walton et al, W. P. Brightwell 1	9000	3685
Ward Oil Corp. et al, Leverett 1	15,000	3700
Westheimer-Daube-Cox & Hamon, Peterson 2	12,000	3798
JOINER FIELD—		
Wm. H. Dunning Jr., et al, C. Young 1	4000	3726
Harry W. Elliott et al, Deason (5-ac) 1	500	3644
Federated Oil Co., Camp 3	1500	3659
Fitzsimmons & Thomason, M. Alford 1	500	3718
John Mabee, Inc., Brett 1	3600	3748
Chas. L. McMahon et al, A. P. Finney 1	2000	3645
Merrick Drlg. Co. & Gibson & Johnson, Ashby 1	1735	3725
Merrick & Texas Inland O&G Co., Cooper 1	1500	3682
Petroleum Marketing Corp., Deason 2	6500	3727
Sun Oil Co., Selman 1	10,000	3737
Ward Oil Corp. et al, Cox 1	3000	3732
Sinclair O&G Co., Jarvis 1	6000	3710
A. Wiley 1	1000	3862
VAN FIELD—		
Humble O&R Co., C. L. York 1	6000	2921

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Fraser & King, King 1	*	2226
Hunter Oil Corp., Wagner 1-B	50	1396
W. C. Young et al, Langford Inv. Co. 1	*	2300
CLAY COUNTY—		
Ray Dawson et al, Wylie 1	¶6½	1600
J. B. Jameson et al, McInness 1	*	2560
THROCKMORTON COUNTY—		
Holder-Gordon & Gulf Prod. Co., Wilhelm 1	*	740
JACK COUNTY—		
Brazos River Gas Co., Keyser 2-B	¶2½	3025
WICHITA COUNTY—		
Barkley & Meadows, Thomas 1	*	2508
Gilbert et al, Chilson 1	*	1849
NORTH YOUNG COUNTY—		
W. E. Barnhard et al, Belknap 3	*	527
Junker et al, Finch 9	*	1125
King Royalty Co. & Phillips Pet. Co., Larimore 18	110	712
Putnam Oil Co. et al, Jeffery 1	*	952
SOUTH YOUNG COUNTY—		
Continental Oil Co., Baptist Church 1	35	4833
Long et al, Williams 2-A	*	2503

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Young Bros. & Alexander, Armstrong 1	*	1230
CALLAHAN COUNTY—		
Guffey et al, Finley 3	*	765
Mid-Tex O&G Co., Windham 1	¶1½-10	4438
Prairie O&G Co. & Bryant, Renfro 1	*	1612
Union Oil Co., Dyer 1	*	745
John Victor et al, Alexander 1	*	1435
COLEMAN COUNTY—		
Arcadia Ref. Co., Burkett 2	125	1618
Burkett O&G Co., Webb 1	*	1582
Canyon O&G Co. & Lane, Harris 1	130	1619
Condor Pet. Co., Horn 1	¶2	1127
Hampton & Carter, Kingsbury 1	*	1470
Jackson et al, Wright 1	*	1648
Neversuch Oil Co., Burkett 3	250	1610
Texas Pet. Co., Kinney 1	*	1000
Vernon O&G Co., Tweedle 1	*	1458
EASTLAND COUNTY—		
Brown et al, Huestis & Broyles 1	*	1385
Ed. Keough et al, Owens 1	25	3478
Lone Star Gas Co., Cozart 1	¶½	3857
Natures Treasure Oil Co., McClelland 1	¶5	3700
Prairie O&G Co., Richardson 1	¶2	1196
PALO PINTO COUNTY—		
Dalton et al, Dalton 1	*	1350
McLester Oil Co., Wilbar 4	¶¼	1780
Thomas et al, Thomas 1	¶3¼	3000
STEPHENS COUNTY—		
Lone Star Gas Co. & Lyman, Vick 1	¶3½	1852

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
JONES COUNTY—		
J. B. Jameson et al, King 1-A	*	2088
LOVING COUNTY—		
West Texas Pet. Co., Salisbury 1	130	4400
UPTON COUNTY—		
C. C. Duffey et al, McClintic 4	100	3110

Wildcat Reports From All Sections

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SOUTH TEXAS

BEE COUNTY—Grebin and Wood's Riggs 1, James Nowland sur, six and one-half miles west of Skidmore, two miles from Live Oak line, ru. Alexander et al's McFall 1, 3 miles s Skidmore, sd 305 ft. Catlett & O'Neill's Miller 1, Ronald Hoskiss sur, 8 mi w Beeville, failed to get dst of sand at 4509-15 ft. Mauldin and Fisher's (Mineral Oil Co.), A. J. Kimball 1, 300 ft se of Grayburg Kimball well, Stephin Winship sur, 7 mi sw Pettus, produced 35 bbls 35 gravity oil at 80 degrees in 8 hours April 25, install gas lift to make well flow, casing set 3535 ft, sand 3537-40 ft, total depth 3544 ft. Moody-Seagraves Producing Co.'s McKinney 2, George Habbermacher sur, 3 mi n Pettus pool in vicinity of Ray 13 producer, set 368 ft of 10-inch, drilling ahead. Davis et al's George Ray 1, ne corner of Ray tract, ¾ mile sw Pettus, moving on material. J. S. Mauldin's Mauldin 1, just sw Pettus townsite, George A. Kerr sur, sd for cas, sand at 3847-54 ft showed for producer, total depth 3862 ft, United Production Co.'s Ray 38, 900 ft e of production in Pettus discovery pool, T. Hanson sur, dr 2750 ft; Ray 37, 1 mile e and slightly s Pettus discovery pool, Willis A. Moore sur, ru.

BEXAR COUNTY—Camp et al's Chavez 1, near Elmendorf on Juan Montez sur, 10 mi from San Antonio, ru. Russell & Moore's A. O. Mills 3, Navarro sur, 10 mi se San Antonio on Somerset road, sd 938 ft. J. Morgan Russell's Price-Story 1, A. Navarro sur, 10 mi se San Anutonio on Somerset road, sd for repairs, total depth 1175 ft. Uechert et al's Palfrey 1, 7 mi se San Antonio near Brooks field, sd about 1808 ft. Weilbacker and Brock's Ernest 1, J. Christopher sur, 2 mi n Somerset, sd 925 ft.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Yount-Lee Oil Co., Chambers County A. A. 19	700	3794
Humphreys Corporation, E. H. Winfree 3	2640	5716
Winfree 1	2100	5682
BLUE RIDGE—		
Doney & Means, Bassett Blakely 1	200	3790
GAY HILL—		
Sun Oil Co., Janner 5	*	1089
JEFFERSON COUNTY—		
Keith et al's Reed-Hankamer 1	*	5029
MOSS BLUFF—		
Humble O&R Co., Sergent 2	*	5930
Texas Gulf Sulphur Co., Cowan 1	*	1363
Munger 1	*	1003
PIERCE JUNCTION—		
Smith et al, Fee 3	15	4484
SHEPHERDS MOTT—		
Cockburn Oil Corp., Hawkins 2	*	5244

SOUTH TEXAS

GUADALUPE COUNTY (Darst Creek)—		
Magnolia Pet. Co.'s Klein 2	325	2633
LIVE OAK COUNTY—		
Simmons Oil Co.'s Wedding 1	*	2410
REFUGIO COUNTY—		
Moody-Seagraves' Shelley 1, blk 4	*	6456
SAN PATRICIO COUNTY—		
United Prod. Co.'s Cage 3	*	4012
Aransas Oil Co.'s Welder 1	¶40	3663
ZAPATA COUNTY—		
Trevino Oil Corp.'s Trevino 8-A	50	1224
O. W. Killam's Bustamante 6	10	1243
Nordan & Morris' Bustamante 1	600	1491

MISSISSIPPI

HINDS COUNTY, (Jackson)—		
Mrs. Ella Rawls Reeder, State Land 1, 25-6-1e	*	2905

BLANCO COUNTY—Hardy Sitton's (formerly Adams and Lysles) Standeford 1, sur 155, 3¼ mi nw Blanco City, sd 952 ft. Meeks et al's Walker 1, ne corner Noel Nixon sur 23, 4 miles n Blanco City, dr around 1040 ft at last report. Forest Oil Co.'s Hohenberger, sur 94, sd 550 ft.

BROOKS COUNTY—The Texas Co.'s Allen Land and Cattle Co. 1, 7110-acre San Antonita Grant, dr 200 ft. Howeth et al's Singer 1, 400 ft e of Humble's Singer 1, ru.

CALDWELL COUNTY—Mills and Chapman's McMahon 1, 6 mi se Lockhart, Pinchebacк sur, dr 2340 ft. Ralph Ogden's O. S. Alexander 1, 10 mi se Lockhart, 450 ft n of Foster Reiter's Alexander 1, sp.

COMAL COUNTY—Caldwell and Lanier's T. J. Byler 1, HE&WT Ry sur No. S-894, 10-in cas set about 600 ft, to re-dr.

DE WITT COUNTY—Gibson and Strum's Clark 1, 1 mi n and slightly w of Slick pool, Dolores Aldereta sur, ru.

DUVAL COUNTY — Humble O&R Co.'s Kohler 50, sur 164, Kohler pool, set 6⅝-inch cas 6009 ft, now dr 6084 ft. O'Byrne et al's Weil Bros. 1, 7 mi sw of S&O pool, B.S.&F. sur No. 568, sd 1720 ft to rep boiler. Southern Oil Co.'s King Harper 2, sur 323, Cole field, lcn abn. S. J. Carpenter (Gas Pape) Juan Benavides 1, blk 38, sub of No. 1 Carpenter sub, Mesquite Grant, sd 1600 ft. Magnolia Pet. Co.'s Wilson 3, sur 134, S&O pool, dr 1310 ft. The Texas Co.'s Bishop Duval Land Co. 1, sur 135, S&O pool, dr 1400 ft. Magnolia Pet. Co.'s W. Benavides 1, sur 172, Cole field, ru. Coffee et al's Jose Garza 1, center sur 49, Garza Irrigation Co., dr 825 ft.

FRIO COUNTY — Wray and Dunbar's Barnes 1, 1 mi from Big Foot, sec 123, showing some sulphur water, 5 3/16-in cas set 3662 ft, total depth 3708 ft.

GOLIAD COUNTY—Gibson Oil Co.'s Parks 1 (wo), 5 mi ne Goliad, sidetracking at last report, cas set 4520 ft, total depth 5276 ft, but plugged back to 4555 ft.

GUADALUPE COUNTY—J. E. Linne 1, 8 mi sw Seguin, 5 mi s of Marion, center of tract in V. Cortario sur, moving on material. McGarity et al's A. Wesch 1, Thompson sur No. 89, nw part of county, 2 mi n Marion, dr around 600 ft.

JIM HOGG COUNTY—Magnolia Pet. Co.'s Y. V. Cuellar 1, blk 92, W. A. Dannelly sub, sur 575, share 2, El Peyote Grant, dr 3699 ft. P. & M. Oil Co.'s (Peterman and Minahan) Palacios 1, 3 mi s and 10 degrees e Randado field, blk 14, sur 231, sd 1360 ft.

JIM WELLS COUNTY—Carsil O&G Co.'s McGill 2, 900 ft due no No. 1, Wm. D. Baldwin sur, 3 mi n Armagosa, dr 1400 ft. Gulf Prod. Co.'s Shaeffer 3, 7 mi n Carsill well, J. Pointevent sur, dr below 2000 ft.

KERR COUNTY—Col. B. M. Hartridge's W. R. Rischworth 1, sec 1549, 2 mi se Center Point, dr to 117 ft and sd, to move on larger rig as soon as titles are cleared up; Westland 1, blk 23, Westland addition, in Kerrville townsite, to set 6⅝-in cas at 40 ft, total depth 445 ft. Evans and Gant's Jeff Love 2, sw corner sec 1593, one-half mile se discovery well, dk; Seiker and Mears 1, sw corner sec 1605, CCSD &RGNR Ry sur, 2 mi ne Love test, run 8-in cas at 1650 ft. Mimms et al (formerly Gant and Kilgore) J. E. Young 1, nw cor sec 28, ne of Love well, ru.

KLEBERG COUNTY—Barbee and Hunter's Finnegan 1, nw cor Finnegan tract, 7 miles s Kingsville, dk.

LIVE OAK COUNTY — Burke-Greis Oil Co.'s Geo. West 1, 10 mi w Geo. West, about center of James L. Vaughan sur No. 57, sp. Houston Oil Co.'s Cartwright 23, approximately 700 ft ne of Cartwright 11, Sandman sur, Mt. Lucas field, ru; Brown Land and Cattle Co. 4, sw corner M. B. Kivlin sur, Mt. Lucas field, fsh for milling tool and part of drill stem. Simmons Oil Co.'s Wedding 1, 2 mi n Three Rivers, abn 2410 ft.

MEDINA COUNTY — Sunflower Oil Co.'s Mofield 1, 2 mi w Ina field, sur 532, dr 1630 ft. Yancey Dev. Co.'s Faesler 1, 1½ mi n Yancey, sur 801, dr 1420 ft.

NUECES COUNTY—Gulf Coast Oil Co.'s Harrell 1, ¾ mi n Sedwick producer, GC&SF sur, sec 311, block 32, set 447 ft surface cas. L. L. Smith, Inc.'s Hunter 1, Rincon Del Osa Grant, east of field, set 550 ft surface cas. Saxet Oil Co.'s Dunn 8, ne Dunn 7, dr 600 ft.

REAL COUNTY — Gant and Kilgore and Eastland Oil Co.'s Dan Auld 1, sec 23, CCSD& RGNR sur, 3 mi sw Love producer, run 6⅝-in cas 3285 ft. Evans and Sprinkle's Haby 1, sec 175, A. B. & M. sur, 7 mi sw Love well, dr 1590 ft.

REFUGIO COUNTY—Humble O&R Co.'s D. M. O'Conner 1, east of Refugio field, near Victoria County line, lcn.

SAN PATRICIO COUNTY—Arkansas Oil Co.'s Welder 1, 5 mi ne Sinton, E. Portillo sur, completed for approximately 40,000,000 cu ft dry gas, 1600 pounds pressure through ¼-in choke on tubing, casing set 3652 ft, sand 3653-63 ft. United Prod. Co.'s Cage 3, White Point, abn 4012 ft. Saxet Oil Co.'s White Point Dev. Co. 4, showed 8 fourbles mud and little gas in top of sand cored from 4010-36 ft, to test slightly deeper.

STARR COUNTY—R. B. Tips' Frank Doyno 1, lower tract No. 4, Porcion 81, set 12-in at 332 ft. Sacramento O&G Co.'s Seabury et al Share 5, Porcion 75, Jurisdiction of Carmargo, 8-in cas set 400 ft, sd 411 ft, tested dry. Los Olmos Oil Co.'s Kelsey Bass 4, blk 7, sub of Porcion 75-76-77, Jurisdiction of Carmargo, dr 143 ft.

VICTORIA COUNTY— Simpson-Fell Oil Co. & Westheimer et al's Levi 1, 10 mi s Victoria, 15 mi ne McFadden field, set 1163 ft 12¼-in cas. T. B. Slick Estate's McFadden 1, ne Lion Oil & Refining Co.'s production, set 1150 ft 12¼-in cas. The Texas Co.'s McFadden 3, w of No. 2, wild gasser, lcn. United Gas Co.'s McFadden 2-B, 3000 ft nw Lion's McFadden 1 gasser, lcn. Lion Oil & Ref. Co.'s McFadden 3-A, no report. Houston Oil Co.'s Beck 1, 1000 ft e of nw corner of T&NO Ry sur, Beck ranch, 1 mile s of McFadden ranch, lcn; McFadden 2, lcn to be made.

WEBB COUNTY—Cole Pet. Co.'s Benavides 2 (4), sur 1601, dr 1450 ft. Carolina-Texas O&G Co.'s Barnsley 9, blk 13, sur 268, being completed, sand 2567-75, set 6⅝-in cas 2567 ft.

ZAVALLA COUNTY—Texas Gas Utilities Co.'s I. Pryor 4, Pryor field, being completed, sand topped 694 ft.

ZAPATA COUNTY — Trevino Oil Co. (Edgington and Niles) Trevino 8-A, blk 26, sur 412, Muckelroy pool, completed 50 bbls, sand 1219-24 ft, 6⅝-in cas set 1219 ft. Benson Oil

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Co.'s S. Vela 1, blk 12, sur 259, dr 1440 ft. E. C. Brogan's Montemayor 1, blk 11, sur 64, sand 1494-1500 ft, showed considerable oil, set cas 1485 ft. W. T. Bill Henry's Gopher Trust Estate 1, blk 11, sur 4, Fullerton sub of Share 8, Borrego Grant, sd 1400 ft to lay new water line. O. W. Killam's A. Bustamante 6, blk 8, Share 5, Fansler Partition, Comitas Grant, completed for 10 bbls, sand 1231-43 ft, casing set 1231 ft; A. Bustamante 7, blk 7, Share 5, Fansler Partition, Comitas Grant, lcn; Cuellar 40-C, sur, 278, Cuellar pool, dk. Lowe and Rogers' P. Benavides 2, blk 13, sur 613, sand 1340-42 ft, showed 15,000,000 cu ft gas on dst, set casing 1340 ft, wait on cement. National Oil Co.'s Luther et al 1, blk 97, Da Pron sub, ne ½ Porcion 6, sd 590 ft. Neilson and Coursey's Luther et al 1, blk 11, sec 5, Fullerton sub, Share 8, Borrego Grant, dr 1156 ft. Nordan and Morris' (Bateman) Jose Bustamante 1, share 35, Fansler Partition, Comitas Grant, ¾ mi s Muckelroy pool, flowing 19½ bbls oil hour on ¼-inch choke on 2-in tubing, swabbed better than 600 bbls, sand 1485-91 ft, casing set 1485 ft. J. I. Newton's I. G. Trevino 3, blk 7, sur 66, lcn. Penny Prod. Co.'s Juan V. Cuellar 1, blk 1, sur 2, Pappas sub, Porcion 33 and 34, reaming 2035 ft. F. A. Talmadge and G. Mackenzie's G. F. Trevino 1, blk 6, sur 4, Marts and Beavens sub, Porcion 2 and 3, sd 519 ft. T. H. Ward's Uribe 1, blk 8, sub of share 7, Partition 6, Trinidad Uribe Partition of Juan V. Borrego Grant, prep to dr, rigged up several months.

EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
MARION COUNTY—		
Eden Oil Co., J. M. DeWare 1, R. Hazlewood sur	*	3304
PANOLA COUNTY—		
Ark. La. P. L. Co., L. Werner S. M. Co. 13, B. C. Jordan sur .....¶2¼		4721

HARRISON COUNTY — Hunter et al's Daugherty 2, W. B. Burris sur, 12½ cas 245 ft, ta in Georgetown, td 3563 ft. O. H. Parkening's T. J. Taylor 1, Walter H. Payne sur, sp arr set surf cas 250 ft; T. J. Taylor 2, J. C. Hawley sur, dk. Rowan & Nichols' Henry Pitts 1, E. A. Merchant sur, lcn abn; Bussey 1, E. A. Merchant sur, dk pat. Crump & Hannagan's Dunn 1, Bettie Humphries sur, elev 330 ft, base PG and top Saratoga 2830 ft, ta 4006 ft. W. G. Ray Drilling Co.'s Hall 1, D. Davis sur, 10-inch 173 ft, top AC 3445 ft, base AC 3471 ft, top PG 2257 ft, base PG 2859 ft, top Georgetown 3472 ft, sd wo. Siegel Bros. et al's T. J. Taylor 1, F. O'Neal sur, lcn. Sinclair O&G Co.'s Davenport 1, J. V. Morton sur, elev 396 ft, top PG 2420 ft, base PG 2960 ft, tested dry 5 ft sand 3693-98 ft, sd 3735 ft. Geo. L. Pace's Barker 1, Victor Pedraso sur, elev 349 ft, top PG 2207 ft, dr shale and bro chalk 3497 ft. Banner et al's Lowrey 1, W. O. Stanfield sur, top Nacatosh 1700 ft, top PG 2136 ft, cored sand (probably Blossom) reported showing oil 2797 ft, arr set cas, td 2803 ft. Ryan Cons. Pet. Corp.'s H. H. Key 1, E. Carroll sur, rig (Trinity test planned). Everts Drilling Co.'s Sypert 1, Richard Hooper sur, dk. J. M. Gholson's Bivins 1, T. K. Pearson sur, dk. Olford et al's Boling 1, W. O. Stanfield sur, rig. William Atkinson's Hays 1, J. C. Chappin sur, dk. Thomas & Kinsey's J. R. Watson 1, Thomas Iden sur, dk.

MARION COUNTY—Trammell et al's Hussey 1, Chas. Lockhart sur, elev 282 ft, top chalk 1771 ft, 8¼ cas 1514 ft, ta junk in hole, td 1878 ft. Rondeau & Hindman's McGaugherty 1, W. J. Wills sur, co to deepen, td 2450 ft. Hindman et al's Lindsay 1, Alex Albright sur, sd 400 ft. J. W. Hamilton's Wood 1, Alex Albright sur, sd 400 ft. Eden Oil Co.'s J. M. De Ware 1, R. Hazlewood sur, elev 208 ft, 10-inch 400 ft, top PG 2105 ft, base PG 2595 ft, top Georgetown 3258 ft, dry abn in Georgetown lime, td 3304 ft. Sinclair O&G Co.'s Wright-Braden 1, Jacob Grover sur, elev 336 ft, top Georgetown 3451 ft, sd 3463 ft. D. R. Coulter 1, Wm. Russell sur, elev 376 ft, sd in lime 3906 ft. Gist Claunch et al's Laun 1, Henry Fugham sur, rig.

NACOGDOCHES COUNTY — Adams & Williams' Lawson 1, lcn. Big Indian Oil Co.'s Stewart 1, lcn. Tex-Okla. Corp.'s Driver 1, Torres sur, dr 900 ft. Benedum & Trees' Conkrite 1, Chireno sur, coring 2800 ft. C. M. Bowie's Miller 1, Strode sur, set 8-inch cas 675 ft. Bunte, Martin & Scroggins' Boatman 1, Moore sur, sp in. J. F. Burke et al's Pattison 1, Santos sur, sd 4270 ft. Fain & McGaha's Pirtle 1, Edward sur, lcn. Foreman & Weller's Smith 1, Ybarbo sur, lcn. Matthew Foreman's Mattauer 1, Chireno sur, dk. Robert R. Osborne's Cooper 1, Windsor sur, ru. Joiner et al's Reeves 1, Lloyd sur, ru. Sequoia Oil Co.'s Boyd Estate 1, Oliver sur, ru. John Starks et al's Langford 1, Cason sur, stdg 3860 ft. W. W. Wheeler's Parmalee 1, 8 mi n Nacogdoches, dr 3100 ft. E. L. Chapman-Tilford's Hunt 1, Bennett sur, dr 3040 ft. Joiner & Henson's Andy Legg 1, Durst sur, sp in. J. C. McNeal's Hayter 1, Boren sur, sp in.

PANOLA COUNTY—Smith et al's Hunt 1, Albert Johnson sur, lcn abn. Bell et al's Burnett Lbr. Co. 1, S. B. Hendrick sur, elev 186 ft, sd 3335 ft. Dillon & Bradham's Baldwin 1, Hampton West sur, 12½ cas 43 ft, claim top PG 1500 ft, sd 1555 ft. United Prod. Corp.'s Steele 17, B. C. Jordan sur, lcn (Trinity test). Werner 10, B. C. Jordan sur, sp dr 167 ft (Trinity test). Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, 12½ cas 780 ft, top chalk 1352 ft, 8¼ cas 1900 ft, sd 2600 ft. Neff et al's Brumble 6, B. C. Jordan sur, dk (Trinity test). Texas Co.'s Brumble 12, Jno. Womack sur, 10-inch 1200 ft, dr anhydrite 4429 ft. Ark. La. P. L. Co.'s Werner Sawmill 13, B. C. Jordan sur, 12½ cas 142 ft, 9-inch 3448 ft, 7-in 4650 ft, gauged 2,300,000 cu ft gas r.p. 1800 lbs. in 30 minutes, td 4721 ft. Everett Prod. Co.'s McDaniel 1, Alamson Barr sur, sd 362 ft (third hole). McDaniel 4, Alamson Barr sur, dk. Moses & Wallace's C. L. Daniels 1, Isabel Hanks sur, dk.

SHELBY COUNTY—Sloane Prosp. Co.'s T. B. Sandford 1, M. M. Vann sur, sp dr 120 ft; Windham 1, A. H. English sur, 10-inch 180 ft, dr 2300 ft. Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3111 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. F. Henry sur, 10-inch 240 ft, dr 3000 ft. Maulding et al's Frost Lbr. Ind. 1, A. B. Fountain sur, 12-inch 500 ft, dr 1520 ft. H. H. Gracey's J. A. Morrison 1, Wm. English sur, rig. I. M. Bradley et al's J. J. Asberry 1, G. W. Mitchell sur, dr 500 ft. T. A. Martin's J. A. Bush 1, Alfred Lindsey sur, dk.

SABINE COUNTY—Loring Oil Co.'s Nona Mills Lbr. Co. 1, Jas. Mason sur, ta 4803 ft.

TEXAS GULF COAST

ANGELINA COUNTY—R. D. Moore's Abney Estate 1, sd 1330 ft. Pollock Oil Co.'s Sessions 1, dr 2870 ft, shale and lime.

AUSTIN COUNTY—O'Hara et al's Schrader 1, sd 3630 ft. Empire's Kunze 1, San Felipe, dr 6470 ft shale. Parmeson and Cafferkey's Scholeckte 1, dr 930 ft clay. Humble's Remmert 1, Raccoon Bend, lcn.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, dr 6480 ft shale. United Oil Synd.'s Speer 1, dr 1860 ft shale. Freeport Sulphur Co.'s Fee 2001, Bryan Mound, sd 5140 ft. D. C. Wellock's Hammon 1, Damon Mound, lcn. Rycade & Amerada's Seaburn 2, dr 7620 ft shale.

BURLESON COUNTY — Doran et al's Sparks 1, fsh 1300 ft. Mid-South Oil Co.'s Duckworth 1, sd 2640 ft. Reynolds Oil Co.'s Harris 1, sd 400 ft.

CALHOUN COUNTY — The Texas Co.'s Smith 1, Chocolate Creek, tested sw 4430 ft.

CHAMBERS COUNTY—Pure's Mayes 13, Lost Lake, dr 2260 ft gumbo.

FAYETTE COUNTY — Elam & Reynolds Florence 1, dr 1320 ft shale.

FORT BEND COUNTY—Cullen & West's Lockwood 1, ru. Doney & Means' Blakely 1, Blue Ridge, comp for 200 bbls 3790 ft. Telschow, Cady et al's Blakely 1, dr 1170 ft gumbo. Gulf's Moore 29, dr 80 ft sand.

GALVESTON COUNTY—Yount-Lee's Cade 20, ru; Cade 21, sp in.

HARDIN COUNTY — Pearce & Proctor's Russell 40, lcn. The Texas Co.'s Fee 307, prep to test 3000 ft.

HARRIS COUNTY — Humble's Mintex 5, Mykawa, ru; Minnetex 6, dr 2430 ft sand. Rio Bravo's Settegast 21-A, Pierce Junction, ru. Smith-Hamill Drlg. Co.'s Parsons 1, lcn. Smith et al's Fee 3, comp for 15 bbls 4484 ft.

HOUSTON COUNTY — A. E. Winfree's Hodges 1, Russell Sur, lcn.

JEFFERSON COUNTY—Humble's McFadden 1, 8 mi e Big Hill, dr 7220 ft shale and lime. Keith et al's Reed-Hankamer 1, abn 5029 ft. The Texas Co.'s Pipkin 4, Big Hill, dr 5690 ft. Yount-Lee's McFadden 145, lcn.

LAVACA COUNTY—F. P. Zoch's de Bard 1, lcn.

LIBERTY COUNTY — Cranfill-Reynolds' Davis 7, dr 3320 ft shale. Hamm et al's Harvard 1, Davis Hill, sd 1015 ft. Texas Gulf Sulphur Co.'s Carter 4, abn lcn; Munger 1, abn 1003 ft. Humble's Sergent 2, Moss Bluff, stdg 5930 ft. Texas Gulf Sulphur Co.'s Cowan 1, abn 1363 ft.

MATAGORDA COUNTY — Cockburn Oil Corp.'s Hawkins 2, Shepherds Mott, abn 5244 ft; Hawkins 3, lcn. Empire's Boker 1, Citrus Grove, dr 5785 ft.

MILAM COUNTY—Dil-Tex Oil Co.'s Dulbeck 1, Rodriguez sur, lcn. W. H. Elliott's Davis 1, sd 2150 ft. Kisker et al's Ward 2, stdg 2910 ft. J. E. McKee's Littleton 1, sd 650 ft. Peggi Bros.' Reed 1, sd 2180 ft. Red Bank Oil Co.'s Foster 1, 12 mi e Cameron, dk. Rhoenbotham et al's Johnson 1, sd 2080 ft.

MONTGOMERY — Lake Creek Oil Co.'s Hunt 1, change rigs. Wilhite & Hornbeck's Lieberman 1, 2½ mi w Conroe, dr 3780 ft shale.

ORANGE COUNTY—Crews Oil Co.'s Mansfield 1, washing 1410 ft. Jefferson Prod. Co.'s Bland 1, Jas. Dyson sur, lcn.

POLK COUNTY—Freeman et al's Freeman 2, 4 mi se Leggett, dr 2850 ft shale.

SAN AUGUSTINE COUNTY — Lambeau Thompson Drlg. Co.'s Whitton 1, sd 2900 ft. Henry Mauldin's Frost Lbr. Co. 1, dr 1180 ft rock. H. H. Gracy's Morrison 1, English sur, ru. Chapparel Oil Co.'s Holt 2, Moore sur, sd 3100 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. E. Henry sur, dr 2700 ft. J. M. Bradley's Ashberry 1, Mitchell sur, dr 470 ft.

TYLER COUNTY—King Oil Co.'s Caswell 1, sd 1250 ft. Texas Sun Co.'s, dr 4860 ft shale and lime. L. H. Wentz' Long Bell Lbr. Co., Seale sur, dr 3670 ft sand.

WASHINGTON COUNTY—Cord Oil Co.'s Hahn 1, 6 mi n Brenham, stdg 1880 ft. Penn Tex Oil Co.'s Kamas 2, sd 2800 ft. Sun Oil Co.'s Janner 5, Gay Hill, abn 1089 ft; Marcus 3, lcn; Schlottman 3, dr 1730 ft lime. Yegua Oil Co.'s Graves 1, sd.

WHARTON COUNTY — H. H. Givan's Hudgins 3, rm 1440 ft. Poole & Chappel's Poole 1, ru.

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CASS COUNTY—		
S. D. Hunter et al, M. Felkner 1..	*	3708
SMITH COUNTY—		
Howard Pet. Co., Lee Holt 1	*	4050

BOWIE COUNTY—Mayfield Oil Royalties & Devore's R. B. Cooper 1, W. M. Ward sur, elev 360 ft, top Nacatosh sand 931 ft, sd 1050 ft. Parkington & Jones et al's W. W. Whybark 1, J. H. Dyer sur, dk. W. A. Swift-G. W. Hindman & Tom Ball's Roy Merritt 1, Y. S. McKinney sur, sd 3130 ft. Lee J. Timberlake et al's J. M. Tidwell 2, L. M. Rice sur, elev 290 ft, coring sandy-shale 2800 ft.

CASS COUNTY—R. G. Baker et al's W. R. Kaver 1, John Lick sur, rig. Hunter et al's Felkner 1, elev 248 ft, Pecan chalk 2373-2860 ft, abn in shale 3708 ft. Geo. B. McKamey et al's R. E. Hall 1, H. Buckler sur, cem cas

•165 ft. C. E. Murdock et al's G. W. Coody-First Nat'l Bank 1, Evans Watson sur, elev 401 ft, Pecan chalk 2522-2953 ft, top Austin chalk 3490 ft, coring 3525 ft. Morris et al's Henderson 1, Bailey sur, dk. Olds-Smith et al's Joe Athnay 1, J. C. Byers sur, sd 1650 ft. Pigg & Davis' Ray Bryan 1, Albert Latimer sur, top Nacatosh sur, 1785 ft, dr 1875 ft. John C. Rogers et al's W. Q. Henderson 1, Wm. Davis sur, elev 354 ft, sd 955 ft; Lanier 1, K. A. Welborn sur, elev 366 ft, sd 1930 ft. Smith-Adkisson et al's Wilson 1, J. A. McFarland sur, rig.

CHEROKEE COUNTY—Ben Banner et al's A. S. Lacy 1, J. L. Hogg sur, cem cas 390 ft. D. H. Byrd et al's Fariss 2, elev 215 ft, dr 3860 ft. Fain-McGaha Oil Corp. et al's W. A. Shaw 1, I. Reed sur, dr 160 ft. Helen Clair Oil Co.'s Mrs. M. B. Perkins 1, Thos. Sanford sur, dr 1900 ft. E. M. Jones et al's McLee 1, Jas. Knight sur, dr 2880 ft. O. W. Killam et al's W. A. Newton 1, Thos. Quevedo sur, sp and sd. Rowan-Nichols Oil Co. & Tidal Oil Co.'s Ousley 1, T. L. Smith sur, top Pecan chalk 3138 ft, tested dry 3564 ft. Wm. A. Stone et al's E. M. Decker 1, Geo. Ruddle sur, dr shale 4210 ft. Sinclair O&G Co.'s Martin 1, Larkin Baker sur, rig. Walton Oil Co.'s E. Singleton 1, Tillman Waters sur, dr 2210 ft.

DELTA COUNTY — The Delta Co.'s M. Neatherly 2, J. B. Alexander sur, sd 2870 ft. D. S. Hoad et al's J. J. Baker 1, B. Carson sur, elev 437 ft, sd 1550 ft. Worthington & Stedham's W. H. Dejernett 1, E. Chick sur, elev 492 ft, sd 1925 ft.

FRANKLIN COUNTY—Harper-Byers Oil Co.'s A. J. Laws 1, D. G. Rogers sur, re-bldg dk td 2855 ft. L. B. Pruitt & Geo. L. Pace's C. E. Cowan 1, Lipscomb sur, lcn.

FREESTONE COUNTY—Hicks et al's C. Lampier sur, D. Avant sur, lcn. E. L. Smith Oil Co.'s E. Jackson 1, Wiley Carter sur, rig.

HENDERSON COUNTY—Arcadia Ref. Co. & Shell Pet. Corp.'s Dean 1, Simon Boon sur, sp and sd. Westhyde Inv. Co.'s Thornhill 1, Jas. Spivey sur, lcn.

LAMAR COUNTY—K. O. Bundy et al's G. S. Legate 1, J. V. Cheney sur, rig. Everett & Allen's J. A. Guest 1, Luke Roberts sur, elev 525 ft, top Pecan chalk 2072 ft, sd 2580 ft. Lamar County Dev. Co.'s T. W. Watson 1, I. L. Aud sur, dk. Puritan Oil Co.'s Geo. Parr 1, R. Russell sur, dk.

LEON COUNTY—Sun Oil Co.'s Ella Grayson 1, Marquette Blk., top Austin chalk 3462 ft, dr hard chalk 3630 ft.

MORRIS COUNTY — Verne Dumas Pet. Co.'s Thos. Ball 1, A. S. Young sur, rig. Holmes-Nelson & Flynn's O'Conner 1, J. B. Cherry sur, elev 379 ft, Pecan chalk 2590-3151 ft, dr 3285 ft.

NAVARRO COUNTY—Young et al's Farmer 1, sd 1200 ft.

RAINS COUNTY—Berry-Hale et al's Owenby 1, J. Alexander sur, rig. Rains County Oil Corp. (R. A. Westbrook's) Wm. Cates 1, Calvin Gage sur, top Pecan chalk 2232 ft, trace oil and gas 3540-52 ft, dr 3560 ft.

RED RIVER COUNTY — Droppleman & Bundy's J. W. Cunningham 1, S. V. Chi sur, making drill stem test 2747-55 ft. C. M. Joiner-M. Harris & Echols-Peters' E. Howison 1, W. Humphries sur, elev 540 ft, dr 160 ft. Everett & Allen's W. F. Bryan 1, P. Vaughn sur, dk. Pierson et al's Dellahunty 1, dr 180 ft. Johnson Pet. Co.'s S. C. Style 1, E. M. Dean sur, sd 2405 ft.

RUSK COUNTY—Dan S. Brocks et al's Alford 1, top Georgetown lime 3520 ft, dr lime 3745 ft. R. W. Giles-Frank Melat et al's Newt Orr 1, Wm. Tippett sur, sd 1950 ft. F. Griffith et al's F. J. Lowe 1, Wm. Williams sur, elev 366 ft, top Pecan chalk 2790 or 2820 to 3140 ft, dr 3300 ft. J. S. Kimbrough et al's Weatherly 1, Robt. Martin sur, dr 3210 ft. E. C. Laster, Inc. & Miller's B. B. Gray 1, Jas. McLean sur, dk. Rusk County Oil Co.'s Robertson 1-A, top pecan chalk 2593 ft, fsh 2650 ft. Nat Sadler et al's Ed. Sparks 1, Abner Nail sur, fsh 1270 ft.

SMITH COUNTY — Big Indian Oil Co.'s Mills-Wolford 1, Jas. Jordan sur, elev 420 ft, rig; Holland 1, Thos. Allen sur, top Pecan chalk 2775 ft, dr 2810 ft. E. L. Chapman et al's Alexander 1, dr 2325 ft. Cotton Belt Oil Co.'s Moore-Jackson 1, Henry Muckelborough sur, rig. East Texas Ref. Co.'s Tyiska 1, R. Wilson sur, top Pecan chalk 2820 ft, dr 3050 ft. Dumas Pet. Co.'s Cook 1, rig. H. L. Hunt et al's W. R. Fair 1, McAnulty sur, Pecan chalk 2716-3084 ft, Austin chalk 3560-3600 ft, cem cas 3690 ft. Imperator Oil Corp.'s I. M. Green 1, T. Hogan sur, sp and sd. C. M. Joiner et al's W. M. Wright 1, E. Van Sickle sur, top Pecan chalk 2360 ft, dr 3205 ft. C. C. Julian Oil & Roy. Co.'s Motley 1, lcn. Magnolia Pet. Co.'s J. R. Wright 1, J. Vargus sur, rig. C. R. Morrison et al's Roy 1, C. H. Cook sur, dr 1740 ft. Owen-Sloan Oil Co.'s M. Starnes 1, dk. M. M. Rowan et al's Gibbons 1, J. Margarcia sur, rig. Ruffin-Kilgore Oil Co.'s H. Florence 1, Barnes Clark sur, Pecan chalk 2775-3183 ft or to 3260 ft, sd in salt water sand 3995 ft. Sinclair O&G Co.'s Mayfield 1, rig. T. B. Slick & J. G. Kugle, Jr.'s, Freeman 1, A. J. Lagrone sur, elev 498 ft, Pecan chalk 3080-3275 ft, fsh 3623 ft. Sun Oil Co.'s J. J. Denton 1, J. Vargus sur, rig; J. Henson 1, lcn, abn; O. W. Knight 1, David Collins sur, lcn. A. V. Ritch (99-ac) 1, Sam Dexter sur, dk. The Texas Co.'s M. Blackwell 1, Jas. Jordan sur, Pecan chalk 2705-3090 ft, dr 3410 ft. Valentine & Smith's W. M. Stone 1, D. Shaw sur, rig. Witherspoon Oil Co.'s T. O. Wright 1, J. Vargus sur, Pecan chalk 2714-3060 ft, Austin chalk 3544-3595 ft, cem cas on oil sand 3666-72 ft.

UPSHUR COUNTY—Arcadia Reg. Co. et al's P. S. Johnson 1, J. H. Mallory sur, dk. Beeler et al's R. H. McClelland 1, M. P. Torres sur, dk. Bremen & Woods' Robertson 1, J. Stephenson sur, dr 3010 ft. J. W. Green et al's Wooden 1, Isham Williams sur, dk. Mudge Oil Co.'s J. D. Richardson 1, D. Ferguson 1, elev 451 ft, Pecan chalk 2622-3083 ft, top Austin chalk 3645 or 3695 ft, testing oil sand 3714-43 ft. McPhail-Smith & E. B. Perkins' Kay 1, T. G. Elliott sur, sp and sd. Steinberger & Schwab's Edwards 1, dk.

VAN ZANDT COUNTY—C. M. Joiner et al's W. B. Meeks-Randall 1, A. Dutcher sur, rig. Texas Chief Oil & Roy. Corp.'s Foster 1-A, F. Montgomery sur, dr 1310 ft.

WOOD COUNTY—Deep Rock Oil Co.'s M. Smith 1, dr 115 ft. Paul Vitek & Penn's Rosa Vogel 1, Sarah English sur, rig. Wood County Dev. Co.'s M. M. Rick 1, Daniel Fuller sur, sd 1500 ft.

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WEST TEXAS

BORDEN COUNTY—Geo. Goodrum et al's Conrad 2, sd 780 ft.

BREWSTER COUNTY—Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, dr 2905 ft.

COKE COUNTY—Reid-Hitchins & Stanolind O&G Co.'s Duncan 1, elev 2151 ft, sp and sd.

CONCHO COUNTY—W. I. Betts & Dennis' Wood-Hendrick 1, sp and sd. A. W. Turner-Cromwell & Wesner's Brosig 1, elev 1699 ft, sd 1885 ft.

CRANE COUNTY—Cranfill Bros. Oil Co. & Gulf Prod. Co.'s J. B. Tubb 1, elev 2526 ft, salt 505-1400 ft, top brown lime 1410 ft, top white lime 2455 ft, pb from 5336 to 4503 ft for shot. H. H. Sides et al's B. P. Nolen 1, elev 2355 ft, dr 210 ft.

CULBERSON COUNTY—Cranfill Bros. Oil Co. et al's Seay 1, elev 3867 ft, top Delaware 2034 ft, dr 2655 ft. W. L. Kornrumpf et al's W. D. Garren 1, sd 1280 ft.

DAWSON COUNTY—R. A. Albaugh et al's Robinson 1, sp and sd.

ECTOR COUNTY—Galt-Brown Co. & Penn Oil Co. Unit Plan's Cowden 1, elev 3047 ft, top anhydrite 1525 ft, salt 1535-2600 ft, top brown lime 3852 ft, sd 3860 ft.

EL PASO COUNTY — Tri-State Oil Co.'s Bobadella 1, fsh 615 ft.

FISHER COUNTY—Cranfill-Reynolds Co.'s Flanigan 2, elev 1810 ft, dr 3715 ft. Stanolind O&G Co.'s Steele 2, elev 1873 ft, dr 2285 ft. The Texas Co.'s J. A. Jean 1, dr 430 ft. Texas Unity Oil Co.'s First Nat'l Bank 1, elev 1848 ft, dr 2615 ft.

GAINES COUNTY—Landreth Prod. Corp.'s Nick Alleu 1, sp. Texas Consolidated Oil Co. & TP Coal & Oil Co.'s E. H. Jones 1, elev 3636 ft, top anhydrite 2120 ft, top salt 2225 ft, sd 3435 ft.

GARZA COUNTY—Garza County Dev. Co. (Penny & Porsey's) Justice 1, elev 2266 ft, top salt 550 ft, dr 2310 ft.

HOWARD COUNTY—Continenetal Oil Co. & Group One Oil Corp.'s E. E. Brindley 1, elev 2530 ft, top salt 1170 ft, dr 2410 ft.

HUDSPETH COUNTY—R. G. Patillo & Ed. Welch's K. S. Briggs 1, elev 4017 ft, dr 510 ft.

IRION COUNTY — Benedum-Trees et al's Sugg 1, rig. Stanolind O&G Co.'s W. H. Williams 1, elev 2544 ft, dr 5200 ft. Straughn et al's Tankersley 1, elev 2306 ft, sd 1560 ft. F. E. Webb et al's Nutt 3, elev 2347 ft, dr 1235 ft.

JONES COUNTY—J. C. Abers & L. D. Pruitt's L. L. Burton 1, rig. Bonds-Trout et al's Williams 1, sd 2581 ft. Jake Croft & Conner & Tidal Oil Co.'s W. D. Swann 1, dr 510 ft. Hardly Able Oil Co.'s Butler 1, top lime 2484 ft, dr with show oil and water 2540 ft. C. C. Julian Oil & Roy. Co.'s Sears 1, lcn. Shaheen Oil Co. & B. A. Duffey's Chittum 1, elev 1676 ft, dr 2060 ft. Tex-Mex Oil Co. & Eastland Oil Co.'s Brewer 1, dr 390 ft. Union Oil Co.'s Hoyt 1, dr 860 ft. Andy Urban et al's Ed. Quinn 1, rig. Sam C. Yingling et al's E. D. Coates 1, fsh 2205 ft. Young & McNeil's L. R. Cade 1, fsh 1060 ft.

LOVING COUNTY—The California Co.'s J. G. Allen 3, elev 2741 ft, top salt 815 ft, dumped 20 gals acid around lost tools 2858 ft; Allen 4, dr 845 ft. Carl Cromwell & Atlantic Oil Prod. Co.'s Russell 2, rig. Erwin & Mehres Dev. Co.'s W. R. Lind 1, dk; Lillie Thorpe 1, sd 810 ft. Folbre & Evans' D. P. Dean 1, fsh 1385 ft. Grisham-Hunter Corp.'s Dean 1, elev 2655 ft, dr 1365 ft. Henshaw et al's Reagan 2, rig. Pete Hoffman et al's Ramsey 1, elev 2685 ft, top salt 760 ft, set cas 4050 ft; Ramsey 2, elev 2678 ft, dr 1570 ft. Lewis Slagel Drlg. Co.'s Cartwright-Henderson 1, elev 2901 ft, salt 585-2907 ft, top Delaware lime 3086 ft, top sand 3127 ft, pb from salt water 3180-82 ft, to 3179 ft. Lockhart & Co.'s I. J. Bell 1, elev 2705 ft, top salt 770 ft, dr 2890 ft. Richmond Drlg. Co.'s Wheat-Russell 1, elev 2678 ft, top salt 765 ft, dr 2645 ft. W. A. Sudderth & James' Capitola Pool 1, dr 725 ft. F. S. Tennant et al's Roy Martin 1, dr 255 ft. West Texas Pet. Co.'s Allen 2, top salt 810 ft, sd 4110 ft.

MENARD COUNTY—C. O. Moore Oil Co. (was J. C. Barnett's) Callan 4, elev 2079 ft, trace oil 1053-67 ft and water sand 1067-80 ft, sd. L. G. Priest et al's Sorrels 1, elev 2279 ft, co 2970 ft. Voss & Bryan's Brandenberger 1, elev 1921 ft, fsh 805 ft.

PECOS COUNTY—Cosby Prod. & Royalty Co.'s W. D. Riser 1, elev 2313 ft, top salt 540 ft, dr 1530 ft. W. B. Hagan et al's Shearer 1, dr 700 ft. J. R. Miller et al's Bennett 1, sd 2285 ft. Penn Oil Co. et al's J. B. Alvis 1, elev 3493 ft, dr 3340 ft. Penn Oil Co. & Honolulu Oil Co.'s R. D. Webb 1, machine. W. F. Whittaker & Calloway's Devlin 1, elev 2706 ft, sd 420 ft.

REEVES COUNTY — The California Co.'s Kloh 2, trace oil 2568-75 ft, dr salt 3425 ft. Humble O&R Co.'s Balmorlea 1, dr 350 ft. Lee O. White et al's Hersheusen 1, co 4415 ft.

RUNNELS COUNTY—Chas. Dutton et al's Dean 1, sd 2335 ft.

SCHLEICHER COUNTY—Eastland Oil Co. Unit Plan's Tjsdale 1, elev 2295 ft, dr 2270 ft. J. D. Wesner et al's Ratcliff 1, elev 2408 ft, dr 3705 ft.

SCURRY COUNTY — R. B. Pender O&G Co.'s Davis 1, elev 2208 ft, top salt 445 ft, dr 5110 ft. Seifert & Dibble's Blackman 1, top salt 720 ft, sd 3112 ft. Simons & Brock's Kruse 1, lcn.

STERLING COUNTY—W. C. Beasley et al's Foster 1-A, elev 2518 ft, sd 1610 ft.

TAYLOR COUNTY — Adams-Ferguson & Hobbs' Lowe 3-A, dr 1465 ft. J. B. Jameson et al's Webb 1, elev 1950 ft, dr 6377 ft. Sanger et al's Abilene Water Works 1, elev 1759 ft, sd 2785 ft.

TERRELL COUNTY — Mid-Kansas O&G Co.'s Goode 1, sd as gasser 6120 ft. Leonard Jones et al's Peckenham 1, elev 2607 ft, sd 1245 ft.

UPTON COUNTY—Bennett Oil Co. & P. H. Williams' Shirk 1-A, sd 2727 ft. Gulf Prod. Co.'s McElroy 93, elev 2588 ft, top salt 1100 ft, dr 2700 ft; McElroy 94, dr 1000 ft. Mintex Oil Co. & Harry Baldwin's Lane 1, elev 2743 ft, top salt 738 ft, dr 1030 ft. Bert Weekley Oil Corp.'s McClintic 2, elev 2715 ft, top salt 1135 ft, dr 2735 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Boogher 3, elev 2741 ft, top salt 810 ft, dr 2080 ft. Beckley et al's Johnson 1, sd 835 ft. Bell & Wier's Boogher 1, top salt 800 ft, set cas 2120 ft; Boogher-Cummings 1, top salt 785 ft, fsh 1900 ft. Buster Black et al's Hall-Roberts 1, sd 750 ft. Alex Bradford et al's B. Carson 1, elev 2457 ft, top salt 820 ft, dr 1250 ft. Clyde Bradford et al's Hordage-Wilson 1, elev 2544 ft, top salt 1027 ft, top anhydrite 775 ft, testing 2340 ft. Bradford & Abell's E. R. Allen 1, machine. The California Co. & Atlantic Oil Prod. Co.'s A. B. Gordon 1, elev 2523 ft, top salt 1000 ft, flowing by heads, dr 2352-2560 ft. Central Gas & Oil Co.'s Lee Monroe 1, sp and sd. Gibson Bros. et al's Johnson 1, elev 2432 ft, top salt 720 ft, sd 800 ft. Gulf Prod. Co.'s Hutchings 7, elev 2648 ft, top anhydrite 910 ft, top salt 1162 ft, flowing 180 bbls oil daily 2490-2552 ft; O'Brien 17, top salt 1085 ft, dr 1650 ft. Harkinson et al's A. Emory 1, sd 750 ft. Magnolia Pet. Co.'s Sealy-Atlantic 1, elev 2686 ft, top anhydrite 1505 ft, dr 2780 ft. R. F. Owen et al's Johnson 1, elev 2499 ft, top salt 1600 ft, dr 4360 ft. Peck et al's Geo. Merritt 1, sd 845 ft, Rector Oil Co. et al's J. S. Smith 1, machine; Boogher 1, lcn. Shipley Oil Corp.'s Monroe 1-A, elev 2655 ft, top salt 2485 ft, dr 3830 ft; Hayzlett 5, sd 2507 ft. Simms Oil Co.'s M. Himmel 1, dr 800 ft. Chester Smith et al's Boogher 1, testing production 2165 ft. E. E. Sturm et al's Jones 1, rig. White et al's L. H. Owenby 1, co 820 ft.

WINKLER COUNTY—Magnolia Pet. Co.'s Bashara 1, elev 2884 ft, top anhydrite 829 ft, top salt 996 ft, top lime 2317 ft, dr 3470 ft.

LOUISIANA GULF COAST

AVOYELLES PARISH — M. L. Vincent's Morrow 1, sd 4220 ft.

BEAUREGARD PARISH—Beauregard G&O Co.'s Cochran 1, dr 520 ft gumbo.

CALCASIEU PARISH — Wilfred Lahay's Jardell 1, sd 3250 ft. Dr. Thomas et al's Hewitt 1, lcn. Vacuum's State 7, dr 6410 ft shale; Miller 12, prep to test 3790 ft; Miller 32, lcn. Yount-Lee's Miller 2, lcn. J. O. Davis' Ind. Lbr. Co. 1, 8 mi n Starks, sd 6560 ft. Gulf's Lutcher-Moore 27, lcn. Union Sulphur Co.'s Fee 765, dr 4220 ft rock; Fee 766, set 6⅝-in cas 4960 ft.

CAMERON COUNTY—Freeport Sulphur Co.'s Gulf Land Co 7, Black Bayou, lcn. Shell's Black Bayou State 2, abn 6463 ft. Vacuum's Cameron Meadows 2, Cameron Meadows, dr 3000 ft shale. The Texas Co.'s State 8, E. Hackberry, dk. Federal Pet. Co.'s Herbert 2, Hackberry, dr 5550 ft shale. R. E. Seiss' Vincent 2, dr 1970 ft shale and lime. Magnolia's Sweet Lake Land Co. 2, sd 4870 ft. Pure's Yount-Lee 10, Sweet Lake, dr 7360 ft o.s.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peigneur 11, Jefferson Island, dr 850 ft lime.

IBERVILLE PARISH — Standard of La.'s Gay 1, Bayou Choctau, dr 4180 ft sand;

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Warehouse Stocks: Houston, San Antonio and Wichita Falls, Tex.; Tulsa, Okla.; El Dorado, Ark.; Coffeyville, Kansas.
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OF TEXAS, INCORPORATED
JON R. LONG, Manager
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Schwing 1-A, abn 6000 ft; Schwing 3, Bayou Blue, sd 2990 ft; Wilbert 9, coring 2450 ft; Case 2, t.a.

JEFFERSON DAVIS PARISH—A. V. Peters' Smith 1, Welsh, dr 1120 ft gumbo.

LA FOURCHE PARISH—The Texas Co.'s Leesville 2, comp for 1475 bbls 3629 ft.

ST. MARTIN PARISH — Humble's Woodward 1, Bayou Bouillon, abn 6471 ft; State 4, dr 4710 ft sand and shale.

ST. TAMMANY PARISH — St. Tammany Dr. Co. and Washington's Coussack 2, t.a. 2030 ft.

TANGIAPAHOE PARISH—Joan Dev. Co.'s Lake Superior Oil Co 1, t.a. 3010 ft.

TERREBONNE PARISH—The Texas Co.'s Bay St. Elaine 1, cutting 9⅝-in cas 4750 ft; Caillou Island 6, dr 4250 ft lime; Dog Lake 4, sp; Four Isle 5, dr 600 ft lime; Lake Barre 6, dr 970 ft sand; Lake Barre 1, lcn, Lake Barre 11, lcn; Lake Barre 12, lcn; Lake Barre 13, cap pil; Lake Barre 14, lcn.

VERMILION PARISH—Pure's Alliance Trust Co 1, Gueydan, lcn.

WEST FELICIAN PARISH —Putnam Synd.'s Como Plantation 2, dr 100 ft shale.

NORTH LOUISIANA

Completions

CADDO PARISH—
United Gas Pub. Serv. Co., Fortner 1, 5-22-16 ..... ¶29¾ 5591

SABINE PARISH—
Packard O&G Co., Davis 1, 8-7-10.. * 2882

BIENVILLE PARISH — Jamestown Synd's Lawhon 1, sw ne 15-16-8w, show gas sandy shale (Tokio) 6-in cas 2845 ft fsh cas td 2854 ft.

BOSSIER PARISH — Andrews & Davlin's Nattin 1, 15-22-14, sd 2950 ft. Rambaugh et al's Allison 1, 10-19-13, sd 1100 ft. Flint River Oil Co.'s DeMoss 1, se nw 22-22-13, sp cemtd 12½ cas 236 ft. Hankins et al's Newell 1, ne ne 12-19-11, sp dr 120 ft (test for upper Trinity). H. I. Morgan's Kendricks A-13, nw se 22-19-11, 10-in 135 ft losing returns at 915 ft (upper Trinity test).

CADDO PARISH—United Gas Pub. Serv. Co.'s Emmons 1, ne sw 27-23-16, 12½ cas 363 ft 9-in 3635 ft 6⅝ cas 5396 ft tested 4,635,000 cu ft gas r.p. 2340 lbs. arr deepen. Fortner 1, nws frac sec. 5-22-16, 5-in 5430 ft gauged 29,748,700 cu ft wet gas r.p. 2325 td 5591 ft. Gordon M. Garry's Hatcher 1, nw ne 11-17-15, lcn. (to be 5500 ft test). Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, 15½ cas 200 ft 12½ cas 1129 ft tested ½ mil ft gas thru ds 1849 ft dr sandy shale 1887 ft (to go to 5500 ft).

CATAHOULA PARISH — National Drilling Co.'s Marsh McMillian 1, 26-9-6e, 6⅝ cas 2796 ft tested sw sd 3097 ft.

CALDWELL PARISH—Hudson et al's Burton 1, 36-12-2e, sd 2799 ft. Carter Bell et al's Taylor 1, 42-14-4e, rig.

CLAIBORNE PARISH—Baird Bros. et al's Whittaker 1, 30-20-7w, tested 5 fourbles mud & sw 2964 ft arr abn td 3000 ft.

CONCORDIA PARISH — United Gas Pub. Serv. Co.'s Hughes 1, 49-8n-10e, rig. Joe Marr et al's Maxwell 1, 38-3-8e, sd 3622 ft.

DE SOTO PARISH—W. H. Weichert's H. Smith 1, 31-14-15, top gas sand 1653 ft top chalk 1901 ft sd 2350 ft. Neff et al's Ramsey 1, 33-13-16, 12½ cas 80 ft bit lost in hole sd 3000 ft. E. T. Oakes' Johnson 1, 30-13-15, rig.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, tested dry show oil in bro sand and shale 1256-69 ft dry 1380 ft sd wo. W. M. Coates et al's Collins 1, sw nw ne 28-9-10, base Midway chalk 2612 ft, base hd lime 4039 ft, tested 15 joints mud and sw 4020-91 ft, ta 4091 ft. J. W. Cooper et al's Cooper 1, 35-11-10, sd 3156 ft. Cooper 2-A, 35-11-10, top chalk 1400 ft sd 1515 ft.

RED RIVER PARISH—Lucky Strike Oil Co.'s Chaffraix 1, 33-12-10, junk in hole, ta 3010 ft.

SABINE PARISH—J. C. Walton's Sabine 1, ne nw 11-7-12, 6⅝ cas 2119 ft sd 2376 ft. Lacey Prod. Co.'s Cooper 1, 30-8-11, top chalk 2306 ft 6⅝ cas 2270 ft hfo, wosr td 2620 ft. Triangle Pet. Co.'s Sabine 2, 36-8-12, rig. J. J. Kean's Belton 1, 31-9-13, sd 1400 ft (formerly Jean Longoria's test). D. M. Lide's Ponder 1, 15-7-11, hfo wosr td 2800 ft. Ponder 2, ne nw 15-7-11, 6⅝ cas 2364 ft show oil, sd 2420 ft. Jno. Woodley's Sabine 1, ne se 12-8-12, 10-in 103 ft 6⅝ cas 2310 ft. H. W. Perritt's Bowman-Hicks 4, se ne 2-7-12, lcn. Boring 1, ne nw 11-7-12, 10-in 85 ft 6-in 2239 ft, tested dry at 2355 ft and 2410 ft dr 2442 ft. A. H. Thames' Edwards Est 1, ne se 8-8-13, 10-in 100 ft sd for water 1200 ft. R. L. Gay, Tr.'s Long-Bell A-1, ne nw 10-8-13, 12½ cas 105 ft top marl 1897 ft base mark 1950 ft dr 2190 ft. Jordan Drilling Co.'s La. Long Leaf 2, 3-7-11, dk. Gautier et al's Meshell 1, se nw 30-8-12, sd 1230 ft. (sec hole). Packard O&G Co.'s Davis 1, sw sw 8-7-10, elev 337 ft 10-in 80 ft 6⅝ cas 2636 ft top marl 2560 ft top chalk 2684 ft dry abn in chalk td 2882 ft. Ohio Oil Co.'s Bowman-Hicks 8, nw ne 2-7-12, 10-in 199 ft 6⅝ cas 2200 ft. Bowman-Hicks 9, nw se 35-8-12, lcn. Bowman-Hicks 10, sw ne 35-8-12, lcn. Bowman-Hicks 11, sw se 2-7-12, lcn. Durham Oil Co.'s Polly 1, sw ne 18-8-12, 10-in 105 ft 8¼ cas 2087 ft base chalk 2595 ft sd 2722 ft. Sabine Royalties Co. Inc., Bill Hill 1, nw ne ne 5-7-11, 10-in 105 ft top marl 2217 ft 6-in 2230 ft 1900 ft oil hole wosr td 2506 ft. Skinner 1, se sw nw 5-8-11, sp. Diffie & Barrett's Lites 1, 34-8-11, 10-in 105 ft sd. Natural Gas Prod Co.'s Sabine 1, se nw 11-7-12, 10-in 40 ft dr 2010 ft. Sabine 3, 1-7-12, 6-in 2222 ft bailed dry 2279 ft dr 2290 ft. Hawkins et al's Moran 1, se ne 1-7-11, 10-in 100 ft coring 2200 ft. Lyons & Neely's Baird 1, se ne sw 1-7-11, 10-in 100 ft 6-in 2410 ft top marl 2408 ft flowing est 1000 bbls oil and occasional fresh water partly choked arr run short string cas shut off fresh water leak td 2456 ft. Texas Co.'s Stille 3, nw sw 33-8-11, rig. W. H. Coates' R. L. Gay 1, sw sw nw 1-7-12, 6-in 2222 ft flowing by heads every two hours wo gauge td 2322 ft. Pelican Nat. Gas Co.'s La. Long Leaf 9, sw se 3-7-11, sp dr 50 ft. Stovall Drilling Co.'s Nulton 1, 1-7-13 lcn. Sabine Prod Co.'s Pearce 2, se nw 10-7-11, lcn.

TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12, fsh ds 3475 ft.

WEBSTER PARISH—D. M. Coyle's Frazier 1, ne se 27-23-11, dk. Cassidy & Davis' Nickerson 1, ne sw 29-23-10, sd 160 ft. Red Hawk Oil Co.'s Matthews 1, se nw 11-23-9, top chalk 2480 ft arr set 6-in cas after failure make ds test in bro formation showing oil 2782-97 ft td 2797 ft.

WEST CARROLL PARISH — United Gas Pub. Serv. Co.'s Pioneer Cooperage 1, 29-21-9, sp cemtd 15½ cas 167 ft.

MONTANA

BIG HORN—Continental Oil Co., Lynde 2, se 21-6s-35e, sd 3405 ft.

CARBON—Spomont Pete Co.'s Cruse 1, 32-6s-18e, dr 100 ft.

CASCADE—Andover Oil Co.'s Floweree 1, se 29-21-2w, resum 1405 ft. Lone Star Oil Co.'s McLean 2, se 13-21-3e, spd.

CHOTEAU—Northern State Oil Co.'s Woodward 1, sw 20-14n-24e, cem wso 2040 ft. Melton Corp., 24-21n-17e, 6 3/16-inch landed at 2825 ft, dr ahead. Pownam Oil Co., 24-19-11e, fsh at 150 ft. Willison Shelby O&G Co., Flack 1, ne 12-28-11, ream 4-inch to s.o.w., td 2830 ft.

GALLATIN—Gallatin Valley Oil Co., nw 1-1n-4e, dr bel 330 ft.

GLACIER—Fulton Pete Corp.'s Blackfeet 1, ne 28-36n-12w, dr 1470 ft. B. & H. Oil Co.'s Haines 1, se 2-34-6w, test oil show 2762 ft. Jeffries-Hoerr's Dawson 1, ne 7-31-12w, resum 3000 ft.

GOLDEN VALLEY—Texas-Pacific's 1, sw 21-8s-21e, hfw 4000 ft. J. F. Dealey et al's 1, ne 28-5n-22e, co.

LIBERTY—Northland O&G Co.'s Yurman 1, 32-33n-5e, fsh bit 3500 ft. Sunburst, McLaren 1, se 8-37-6e, sd 3115 ft. C. G. Howard, Schoonover 1, se 18-36-6e, run 10-inch 1050 ft; Perkins-Brown 1, ne 24-35-4e, rig up.

PETROLEUM—Minnesota-Flatwillow, 7-11n-31e, run cas, td 2600 ft.

ROSEBUD—Prairie O&G Co., 1-X, 26-10-39e, cas trouble, td 2415 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft. California Co., Sullivan 1, nw 34-27-7w, rigging.

TOOLE—Liquid Gold Oil Co.'s Robert 1, ne 25-36-12, dr bel 2150 ft. International Roy. Hold Co.'s Henry 1, sw 26-35-36, sd 2650 ft. A-1 Pete Co., se 24-36-1e, sd 1555 ft.

YELLOWSTONE—Peter Antonicli, 21-2n-25e, wait cas 7600 ft.

COLORADO

ADAMS—N. M. Slatt's 1, se 27-2s-64w, carry 6⅝-inch at 3040 ft.

ARAPAHOE — McDebb Drlg. Co.'s Fitzsimons 1, 7-4S-55, fsh 5802 ft.

BACA—A. R. Jones Oil & Optg. Co., Boice Cattle 1, 22-34-42w, dr 4815 ft.

EL PASO—Utemore Synd., Cannon 1, ne 10-16s-66w, prep to res 1125 ft.

GRAND—Oil Mineral Land, Inc., McElroy 1, sw 14-2n-81w, dr 545 ft.

HUERFANO—Parker Club, Inc., Fee 1, se 4-28s-68w, run 5 3/16-inch cas, td 4116 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4s-69w, dr 3900 ft.

LAS ANIMAS—Oklahoma Drlg. Ass'n, Radcliffe 1, ne 28-28-52, sd 100 ft.

LA PLATA—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, lcn. Klem Pete Corp.'s Olbert 1, se 9-25n-12w, stand 3125 ft. Murchison Oil Co., Doescher 1, nw 29-33n-12, prep to res. 1225 ft.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, to lower 4¾-inch to 3370 ft.

MOFFAT—Mtn Fuel Supply's State 2, tract 37-12-100, fsh spear 2220 ft. S. H. Keoughan et al's State 1 ,sw 16-4n-101w, sd 2960 ft.

MONTEZUMA—G. H. Talcott et al's McElmo 1, 7-35n-16w, repaired, td 640 ft. Haller et al, Carr 2, sw 33-36n-14w, dr 135 ft.

MONTROSE—Uncompahgre O&G Co., Title & Trust 1, 27-50n-10w, dr 115 ft.

MORGAN—Ind. Terr. Illum. Oil Co.'s State 1, ne 16-1n-57w, caving 4090 ft.

PUEBLO—Anchor Oil Co.'s Easley 1, sw 35-22s-57w, drg 524 ft.

PARK—So. Park Oil Co.'s Milligan 1, se 13-9s-76w, dr 1887 ft. So. Park O&G Co.'s Easche 1, ne 5-9s-76w, dr 1630 ft.

RIO BLANCO—California Co.'s Raden 1, se 30-2n-102w, prep to spud deep test.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, stand 1510 ft.

WELD—Reiter-Foster and Platte Valley Pete Corp., Johnson 1, nw 24-6n-61w, mvg in for deep test.

WYOMING

BIG HORN—Westland Oil, Inc., 24-54-95, gas at 150 ft. Wisconsin Holdings, 5-55-97, sd 665 ft. Yellowstone Pete Co.'s 1, 7-87-97, sd 4080 ft.

CARBON—Midwest Refining Co., U. P. 1, 27-11-8-, sd 1810 ft. Pete Expl. Co. of Calif., 29-23-89, fsh bit 2535 ft.

CONVERSE—Converse O&G Co., 27-33-72, sd 1410 ft. Pioneer Oil Co., 5-31-70, to dr new test.

FREMONT—Texas Prod. Co.'s State 1, 36-33-95, sd for orders 4485 ft. P. & R. 1, 33-34-92, sd 4906 ft. Yellowstone Oil Co.'s 1, 15-39-92, dr 600 ft. Ward Oil & Gas Co., 28-34-90, dr 2100 ft. Wiebolt et al, 2-35-99, dr 1300 ft.

JOHNSON—R. C. Tarrant et al, 4-43-82, dr bel 2150 ft.

LINCOLN—Mountain Oil Corp.'s 1, 36-25-116, td 1500 ft. Wyo. Prod. Co., 14-42-113, dr bel 1420 ft, 10-inch cas on bottom.

NATRONA—Summit Oil Co., 21-33n-80w, sd 1220 ft, wait equip. Midwest's 11, nw 32-34n-77, stand 5340 ft. Cuyler Oil Co., 23-36n-85w, test wso 1250 ft. Golden West Oil Co., 36-36-81, co 1242 ft. Midwest's Midway 1, ne 23-35n-79w, dr 6300 ft.

NIOBRARA—West Virginia Synd., 7-35-62, td 987 ft, cas trouble. Phillips Pete Co., sw se 32-34n-65w, oil show 375 ft.

PARK—Resolute Oil Co., 17-57-101, dr 8505 ft, flow by heads about 40 bbls per day.

SWEETWATER—Vermillion Oil Co.'s 1, se 16-12-99, mvg in to res, 3465 ft.

UINTA—Park City O&G Co., nw 6-15-113, dr bel 2400 ft. Doheny interests, 6-14-118, resum 3216 ft.

WASHAKIE—Dakota-Wyoming Oil Co., ne 24-47-90w, small show 200 ft. to be cased off. Ohio Oil Co., lot 14, 19-45-92, dr 2400 ft.

WESTON—LeFaivre Oil Synd., se 29-45n-68w, prep to cem 15½-inch at 1000 ft.

NEW MEXICO

CHAVES—Warman Oil Trust, Siebert 1, ne 27-13-24, dr 2595 ft. Neal et al, Russell 1, nw 2-14s-25e, dr 2135 ft.

DE BACA—Matador Oil Co.'s Wood 1, se 6-4n-20e, wtg on cas, td 3010 ft.

GUADALUPE—N. M. Prod. & Ref. Co., McMullen 1, 24-5n-16e, rig up.

HARDING—Kummbaca O&G Co., Kerlin 1, se 34-21s-30e, much gas at 825 ft.

LUNA—Angelus Oil Mining Ass'n 1, se 20-21s-10w, stand 6095 ft.

McKINLEY—J. W. Halsell's Santa Fe 1,

A SAND PUMP

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You can equip your Miller Sand Pump with a type bottom to exactly fit your present requirements and then quickly change to any of the four type bottoms that meet the working conditions of every well.

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will speed up production in cavy holes by time saved in picking up cuttings.

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used for cutting the sand loose and preferred by some to the Chisel Bottom.

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17-18-9w, sd 3255 ft. Wms et al's A.T.S.F. 1, se 19-18n-8, stand 1900 ft. United Kern Pete, Inc., sw 1-18n-11w, lcn. Dysart et al, Dysart 2, ne 14-14n-10w, prep set 8¼-inch at 1280 ft.

MORA — Santa Fe Diox-Ice Co.'s Wagon Hound 1, ne 14-19-21, dr 265 ft.

OTERO—Ernest et al's 1, se 20-25s-7e, wtg for equip. at 1005 ft. Pasotero Oil Corp., Dexter 1, nw 22-24s-12e, lcn.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pete Co.'s Gov't 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, se 12-29n-7w, carry 8¼-inch 880 ft.

SAN JUAN—Kutz Canon O&G Co.'s Day 1, se 20-28n-10w, dr 2842 ft. Rio Grande Dev. Co.'s 2, 9-29-11, dr 1525 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, cem, td 4730 ft. San Juan Leaseholds, Bowman 3, ne 30-30-15, sd 2685 ft. Reserve Oil Co., Reserve 3, se 36-22n-14w, ur to 750 ft. R. C. Oswell et al, nw 34-30n-11w, dr 75 ft.

SAN MIGUEL—Pioneer O&G Co.'s Thunderbird 1, nw 14-15n-16e, wait 2340 ft. Starr Oil Co.'s Adams 1, ne 25-17-16e, dr 3520 ft. Cibola Pete Co.'s Crown 1, se 9-13n-14e, sd 750 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 12-12n-22e, prep to res 1415 ft. Con-O-Kul Oil Co.'s Cherryvale 1, ne 34-17n-21e, dr 471 ft.

SANTA FE—Jones, Owsley et al, Cantwell 1, 5-10n-9e, dr 85 ft.

TORRANCE—Wms et al's Staplin 1, ne 16-8n-10e, ready to res 1643 ft. J. B. Witt O&G Co., Kutchem 1, 12-7-7e, dr 1470 ft.

VALENCIA—Acme Oil Co.'s N. M.-Ariz. Land Co.'s 1, 26-6-3, dr at 4985 ft. Harlan et al's Harlan 1-A, 5-6n-2e, dr 6800 ft.

KANSAS

MORTON COUNTY — Hydraulic Oil Co., State land 1, nw se, 22-34-43w, sd 3460 ft.

COWLEY COUNTY—Fisher et al, Hunt 1, c sw se se 11-34-3e, ru and sd.

SUMNER COUNTY—Spencer et al, Porter 1, ne sw se se 11-34-3e, rig. Otstot et al, Warlow 2, c se nw se, 22-33-3w, dr 725 ft.

COWLEY COUNTY — Roth and Farrout, Reidy 1, c sw nw ne, 8-32-4e, sd 1040 ft.

HARPER COUNTY—Beeler et al, Bear 1, c ne, 21-31-6w, td 1830 ft sd.

FORD COUNTY—Carter et al, Community-Everett 18, c ne, 22-29-21w, (6000 ft test), dr 3019 ft.

SEDGWICK COUNTY—Buck et al, McNanaman 1, c ne nw nw 2-20-1e, 10-inch 2301 ft, hfw 2295-2370 ft, ts 2440 ft, sd.

FORD COUNTY—Swain et al, Kenthorn 1, c nw, 21-25-24w, 5-inch 4600 ft, dr 4790 ft.

STAFFORD COUNTY — Rosenthal, Stanolind & Amerada, Gray 1, c ne, 11-24-13w, dr 630 ft.

RENO COUNTY — Shell & Continental, Blake 1, sw se se, 23-23-4w, T. chat 3256 ft, 8-inch 3267 ft, td 3308 ft, 8½M gas S. I.

HARVEY COUNTY—Empire & Shell, Showalter 1, nw se, 23-23-2w, 6-inch 3380 ft, td co.

MARION COUNTY—Maidwell, La Master 1, nw c, 31-22-4e, sd 650 ft

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e, 10-inch 818 ft, td 1300 ft, sd. Roberts et al, Jay 1, sw se nw 32-22-15e, td 1250 ft, sd.

BARTON COUNTY—McCool et al, Tsern 1, c sw se ne 12-20-11w, td 1600 ft, sd.

LYON COUNTY—Sheedy et al, Brown 1, c w½ se, 10-20-11e, spd.

RUSH COUNTY—Dewey & Mitchell, Greenwalt 1, c sw, 17-19-16w, dr 2430 ft.

RICE COUNTY—Skelton Oil, Ott 1, c se se, 16-19-14w, sd 2065 ft. Deitrick & Langston, Purcell 1, nw c, 33-19-9w, td 1100 ft, sd.

McPHERSON COUNTY — Henderson & Holden, Sommerfield 1, c ne sw, 23-19-1w, 6-inch 5445 ft, 3467-72 ft hfw, dr 3520 ft.

BARTON COUNTY—Syndicate Oil, Boertz 1, c nw se ne, 13-18-12w, 10-inch 1954 ft, td 2140 ft, fsh tools.

RICE COUNTY — Allison & Fitzwilliams, Blake 1, ne nw 9-18-10w, rig. McFadden & Shell, Jennings 1, c sw ne nw 29-18-6w, pb to sg at 1130 ft.

NESS COUNTY—Gypsy, Coleman 1, c sw ne, 25-17-25w, 3000 ft wih, fsh liner 4690 ft td.

ELLSWORTH COUNTY—Gilmore Oil Co. et al, Sturn 1, nw sw, 31-17-9w, est 2½M gas 2480-85 ft, 3080-95 ft, so, sd 3105 ft.

MORRIS COUNTY — Urschell et al, Bersuch 1, c nw se nw, 10-17-7e, ru and sd.

ELLSWORTH COUNTY — Alladin et al, Stoddenberg 1, c sw, 22-15-10w, sd 1130 ft.

SALINE COUNTY—Stanolind et al, Martin Community 1, ne se se, 3-16-3w, K.C.L. 2168 ft, 2395-2400 hfw, td 2500 ft, ur 10-inch.

MORRIS COUNTY—Hankenson et al, Cessnum 1, sw se 24-16-9e, sd 2210 ft.

FRANKLIN COUNTY—Fileds et al, Usher 1, se c 35-16-17e, sd 400 ft.

RUSSELL COUNTY—Hall et al, Mills 1, se sw se, 30-14-13w, 8-inch 2333 ft, td 2630 ft, co.

ELLSWORTH COUNTY—Milton et al, Kaster 1, se ne, 6-14-9w, 2075- S. G., 8-inch 2109 ft, dr 2170 ft. Hershey et al, Schaltz 1, c ne, 9-14-8w, dr 1310 ft.

OSAGE COUNTY—Riggs-Smith, Wood 1, c se nw, 31-14-15e, 10-inch 1050 ft, sd.

RUSSELL COUNTY — Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, 3320-25 hfw, td 3374 ft, sd.

SALINE COUNTY—Twin Mounds Oil Co., Weis 1, c w½ ne nw, 30-13-4w, (owd) 19-inch 1010 ft, sd 2710 ft.

DICKINSON COUNTY—Severs et al, Livingood 1, ne sw, 13-13-2e, sd 3850 ft.

RUSSELL COUNTY—Gilbreath et al, Bratton 1, c ne, 33-11-13w, 6-inch 2796 ft, dr 2927 ft.

GRAHAM COUNTY — Schleimeyer et al, Clark 1, c sw ne ne, 11-9-25w, rng 8-inch 3715 ft, 6-inch 3848 ft, 4040-46 s. o., dr 4150 ft.

CLAY COUNTY—Nebraska Oil, Tivier 1, sw c 19-8-9e, sd 2500 ft.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw 27-27-26w, 10-inch at 1178 ft, sd 1610 ft.

ROOKS COUNTY — Empire, Holsman 1, c sw ne se, 17-7-20w, 8-inch 2770 ft, dr 2825 ft.

WASHINGTON COUNTY — Simcox, Penwell 1, nw se ne, 16-3-3e, sd 1720 ft.

RAWLINS COUNTY—Danciger et al, Unknown 1, sw c 3-2-35w, sd 2700 ft.

OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al, Sornick 1, nw c se, hfw 2070-2170 ft, sd 2700 ft. T 26n, R 1w, Sec. 32, Boucher et al, Jefferson 1, ne c sw, sd 3502 ft.

HARPER COUNTY—T 25n, R 20w, Sec. 12, Empire, Bruce 1, sw c ne ne sw, td 7936 ft, sd.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Collmer 2, ne c se ne sw, sd 5640 ft, lost tools.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show gas 5298-5303 ft, sd 5330 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, sd 5850 ft.

NOBLE COUNTY—T 20n, R 1e, Sec. 12, Barnsdall et al, Miksch 1, nw c sw, sd 4926 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma, Phillips 1, c nw sw, sd 4600 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al, Quier 1, se c sw, sd 3970 ft.

KAY COUNTY—T 28n, R 3e, Sec. 24, Summitt Drlg. Co., Hayes 1, nw ne nw, show oil 3185-3208 ft, sd 3250 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 5e, Sec. 2, Sherry et al, Milsap 1, se c sw, sd 1750 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool, Berry 1, nw ne sw, sd 1951 ft, show gas.

LINCOLN COUNTY—T 13n, R 6e, Sec. 8, Atlantic, Beebee 1, sw ne sw, lcn. T 13n, R 6e, Sec. 9, Mid-Continent, Lillie 1, ne c se, dr 2930 ft.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, sd 3690 ft. T 11n, R 10e, Sec. 4, M. H. Watts, Champlin 1, sw c, lcn.

PITTSBURGH COUNTY—T 9n, R 16 east, Sec. 32, Pattison et al, McDuff 1, sw nw se, show gas 5654-64 ft, fsh 5687 ft. T 8n, R 14e, Sec. 14, C. O. Cannady, Smith 1, sw c ne nw nw, rig and tools. T 7n, R 14e, Sec. 5, C. O. Cannady et al, Travis 1, c sw ne, rig.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English et al, Weaver 1, c nw se, sd 1542 ft.

OKLAHOMA COUNTY—T 12n, R 4w, Sec. 17, C. F. Cuniff, Trustee, St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, se c nw, rig.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 21, Droppleman et al, Jones 1, se c nw,

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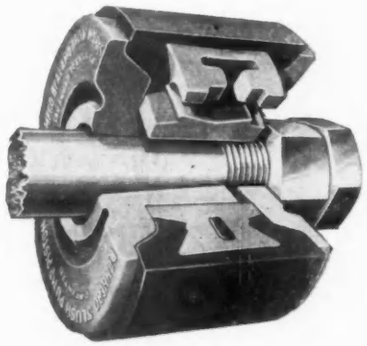

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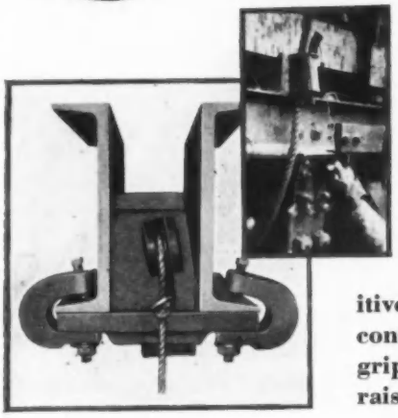

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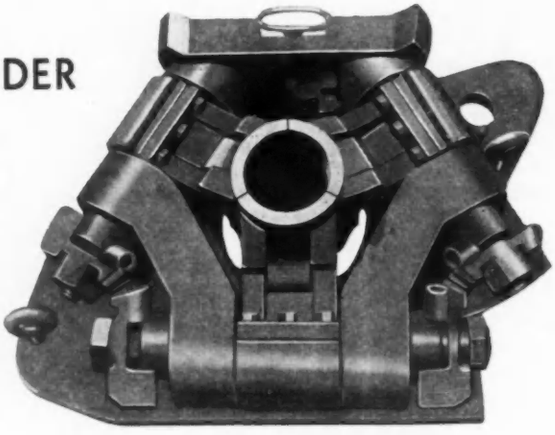

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dr 4435 ft. T 6n, R 4e, Sec. 6, Magnolia, Harris 1, nw e sw, dr 3861 ft.

SEMINOLE COUNTY—T 6n, R 7e, Sec. 15, Magnolia, Powell 1, nw sw se, dr 3670 ft.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Ute Oil Co. et al, Williams 1, e sw, dr 4290 ft. T 11n, R 26w, Sec. 4, J. J. Rook and Palmer, Davis 1, c nw ne, (owd), sd 2956 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 8n, R 19w, Sec. 29, Snodgrass et al, Blocker 1, nw c, dr 1815 ft. T 8n, R 18w, Sec. 21, Burns & Prince, Dock 1, sw c, sd 150 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Good and Dowell, Cliffell 1, nw c, sand 1462-1501 ft, sd 1615 ft. T 7n, R 21w, Sec. 23, H. A. French, Murphy 1, sw nw se, dr 1550 ft.

STEPHENS COUNTY—T 1n, R 8w, Sec. 25, Rose Southard, McKinney 1, ne c, sd 1063 ft.

HUGHES COUNTY—T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, se c sw, 2M gas 915-18 ft, sd 1645 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee, Phillips 1, ne c sw, r.u.r.

COAL COUNTY — T 2n, R 8e, Sec. 10, Whitney et al, Miller 1, se c ne, (owd), sd 760 ft. T 1n, R 8e, Sec. 35, W. E. McCraw, Stiring 1, ne c se, dr 1030 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Quinn 1, nw c, show gas 360-72 ft, sd 500 ft.

BRYAN COUNTY—T 6s, R 7e, Sec. 14, W. A. Johnson, Ussery 1, se c, dry and abn, td 485 ft. T 7s, R 10e, Sec. 8, Bryan Oil Co., Childs 1, ne se sw, sd 660 ft.

SOUTHERN CALIFORNIA

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HAWTHORNE—
Jim Thorpe's No. 1, 10-3-14 ..... * 3670

ALHAMBRA—Fred Hammer's Huntington Land 1, 24-1-13, sd 3393 ft.

BASSETT — Huntington Central Oil Co.'s Pellisier 1, 34-1-11, lcn.

BELL—Cudahay Community Oil Assn.'s No. 1, 30-2-12, dr out cmt, td 1330 ft.

CALABASAS—L. W. Rucker's No. 1, 26-1-17, dr shale and hard sand 400 ft.

CORONA—Western Gulf's Abecherli 1, 12-3-8, bailing oil, td 3267 ft.

CULVER CITY — Olympic Oil and Realty Co.'s No. 1, 14-2-15, re-dr 2385 ft.

DOMINGUEZ—Tenacity Oil Co.'s Del Amo 1, 11-4-13, sd 8500 ft.

FULLERTON—Brea Canyon Oil Co.'s No. 47, dr shale 6767 ft. Standard's Bastanchury 1, 21-3-10, plugged to 7750 ft, bailing and swabbing water and trace of oil, td 8145 ft.

HERMOSA BEACH—E. S. Cone's Kellogg-Burdick 1, 6-4-14, dr shale 400 ft. Corniel Oil Corp.'s No. 1, 31-3-14, co 3190 ft. Hermosa Exploration Co.'s No. 1, circulating 2755 ft. Tulsa Oil Co.'s Hermosa 2, 6-4-14, dr shale 2678 ft. Westwood Pet. Co.'s No. 1, 6-4-14, dr shale 2828 ft.

NEWHALL—Guarantee Oil Co.'s Hammond 1, dr shale 2846 ft. Southern California Drilling Co.'s Needham 5, 13-3-16, rig. Rayne Oil Co.'s No. 1, 11-3-16, rig.

NEWPORT—Standard's Irvine 1, 26-6-10, dr shale 4460 ft.

OCEAN PARK—Hines Pet. Corp.'s Happy Days 1, 8-2-15, sdtr iron 4910 ft.

OLINDA—Graham Loftus Oil Co.'s No. 1, 18-3-9, dr shale 7015 ft.

OLIVE—Texas' Olive Community 1, 7-4-9, dr shale 4875 ft.

PLAYA DEL REY — Mesmer City Realty Co.'s No. 1, 24-2-15, dr shale 4910 ft. West Port Oil Co.'s No. 1, 27-2-15, dr hard brown shale 5780 ft.

PUENTE—Guarantee Oil Co.'s Rowland 1, 14-2-10, dr shale 4235 ft. Rucker and Croul's Grazide 2, 22-2-10, dr gray sand 2165 ft.

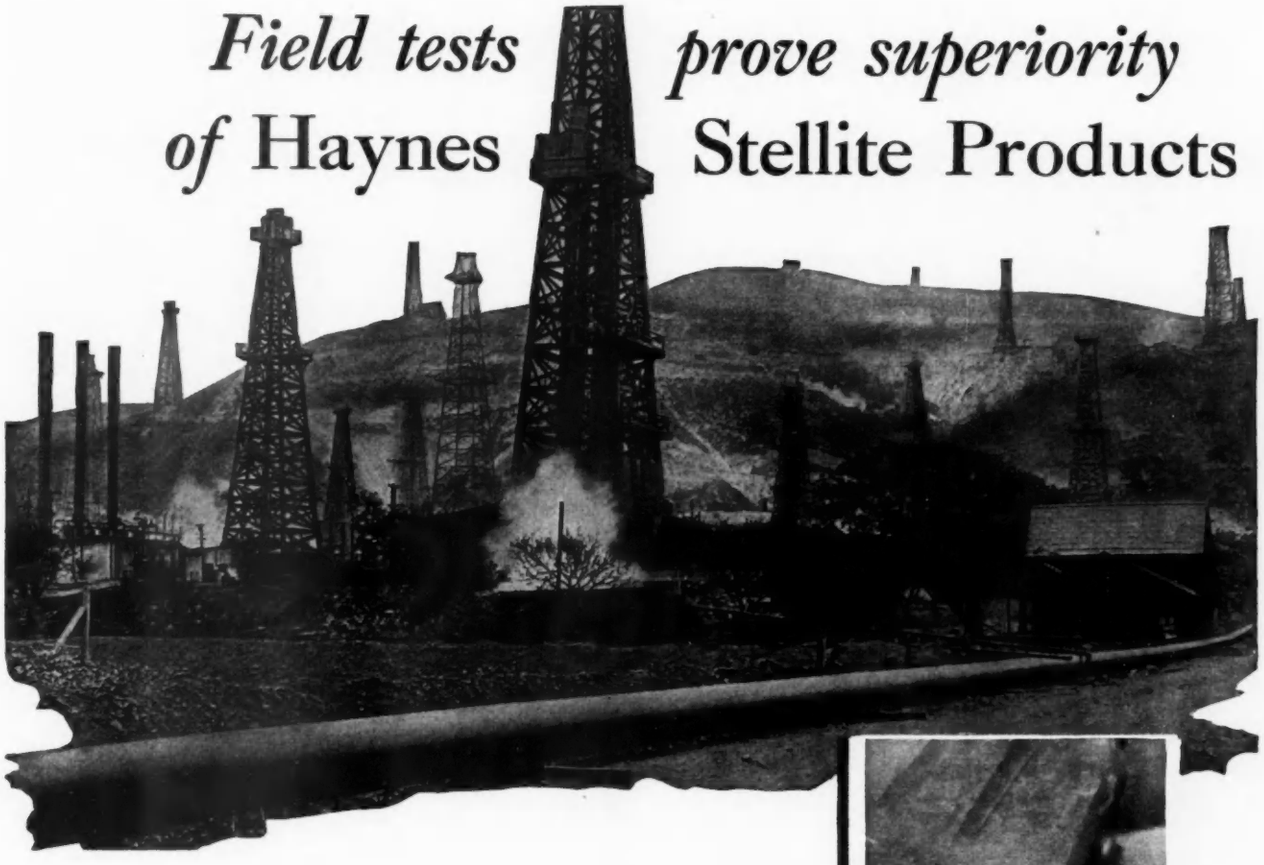
ROSEMEAD—Rancho Oil Corp.'s Harmon 1, 30-1-11, dr rock 5900 ft.

REPETTO HILLS—Texas' F. M. 1, 4-4-12, dr mixed sand 3278 ft.

SUNSET BEACH—Gieck Oil Corp.'s No. 1, 20-5-11, dr shale 1700 ft.

WILMINGTON—W. S. Ewert's No. 1, 20-4-13, lcn; No. 2, 20-4-13, lcn; No. 3, 20-4-13, lcn; No. 4, 20-4-13, lcn. York and Smullin's Watson 1, 29-4-13, co and swabbing, showing water and oil, td 3698 ft.

Field tests prove superiority of Haynes Stellite Products



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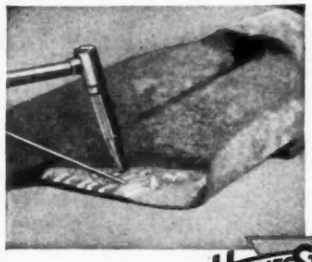

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Continental's Hellman 1, 26-25-11.. * 5095

KERN COUNTY

BELRIDGE—Belridge Oil Co.'s No. 27-8, 27-27-20, sd 3730 ft; No. 27-64, 27-27-20, dr shale 4000 ft; No. 35-8, 35-27-20, dr shale 4515 ft; No. 35-33, 35-27-20, sd 3982 ft; No. 35-48, 35-27-20, sd 4760 ft; No. 35-49, 35-27-20, sd 1055 ft. Continental's Result 2, 36-27-20, dr shale 4165 ft. General Pet.'s Berry 1, 30-28-21, dr shale 4135 ft. Ohio's Bloemer 1, 36-27-20, sd 5985 ft. Reward Oil Co.'s Associated 4, 34-27-20, 11¾-inch cas cmt 5000 ft. Standard's McPhail 2, coring Temblor zone 5326 ft. Texas' Martin 1, 22-27-20, sd 5050 ft. Union's Belridge 17, 36-27-20, swabbing oil, td 5601 ft, plugged to 5540 ft. K. C. Wallace's No. 1, 32-29-31, co 4212 ft.

BLACKWELL'S CORNER — F. B. Langstroth's No. 1, 14-26-19, rigging up. E. J. Miley's No. 1, 17-26-19, lcn.

BUENA VISTA HILLS—Federal Drilling Co.'s No. 6, 20-31-24, pumping water 5367 ft.

BUTTONWILLOW — Wilshire Oil Co.'s Nordon 1, 7-29-24, dr out cmt 6995 ft.

CARRIZO PLAINS — Panorama Oil Co.'s Panorama 1, 7-31-21, re-dr 2500 ft. Tray-El Oil Co.'s No. 1, 7-32-22, fsh for cas 1280 ft.

DEVIL'S DEN—Standard's Alferitz 1, 14-25-18, dr gray sand 2975 ft.

MOJAVE—Kendall Development Co.'s No. 1, 27-11-9, sp.

SEMITROPIC—Shell's Williams 1, 17-27-23, swabbing, td 9702 ft, plugged to 8500 ft, may test upper showings.

SHALE HILLS—Rio-Cal Pet. Co.'s No. 1, 2-27-18, re-dr 2200 ft.

TEMBLOR HILLS—Kent and McDonald's No. 1, 3-32-22, cmt 12½-inch cas 1700 ft.

WEED PATCH—Shell's Morris 1, 32-30-29, dr shale 5278 ft; Porter 1, 29-30-29, dr hard sand 6350 ft; Porter-Day 1, 29-30-29, dr hard sand 8429 ft. Alpine Oil Co.'s Di Giorgio 1, 13-31-29, fsh for drill pipe 3705 ft. Mohawk Oil Co.'s Earl 1, 4-31-29, rigging up; Wharton 1, 32-30-29, swabbing sand and mud, td 6150 ft. Osborn and Coulter's Shell-Duff 1, 15-30-29, dr shale 2200 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s Augur 191-1, 24-4-29, swabbing and pumping for shutoff and production test, td 4191 ft, plugged to 4100 ft. Bell View Oil Co.'s Vivian Permit 159-1, dr shale 2100 ft.

GATO RIDGE—Barnsdall's Tognazzini 1, 9-8-32, fsh for drill pipe 6225 ft.

GOLETA—General Pet.'s More 3, dr gray sand 5200 ft. George W. Johnson's Duncan 1A, 19-4-27, dr shale 2538 ft. Southern California Drilling Co.'s Bishop 1, 12-4-29, dr shale 1565 ft.

LOMPOC—W. Ernest Smith's No. 1, 18-7-34, lcn.

ORELLA — General Pet.'s Erburo 10, dr shale 2075 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 6313 ft.

VENTURA COUNTY

HOPPER CANYON — Bardeen Pet. Co.'s No. 1B, 13-4-19, rig.

OJAI — Drednaught Oil Co.'s Canet 1, dr shale 3600 ft.

OXNARD—Magu Synd.'s Utt 1, dr shale 3100 ft.

RINCON — Chanslor-Canfield Midway Oil Co.'s Hobson A2, 23-3-24, dr tough shale 9365 ft. Continental's Grubb 1, 23-3-24, dr shale 2855 ft.

SESPE—Merchants Pet. Co.'s Cochran 1, 1-4-20, dr shale 1136 ft.

MISCELLANEOUS

FRESNO COUNTY—Associated's Mitchell-Jacalitos 1, 22-21-15, co 4503 ft, water not shut off, may re-cmt.

KINGS COUNTY—T. H. Purman's Avenal 1, 36-23-17, dr shale 5350 ft; Van Valer 1, 36-23-17, lcn. Utah California Pet. Development Co.'s No. 1, 13-24-18, lcn. Irma Investment Co.'s No. 1, 7-23-20, dr gray sand 1320 ft. Kettleman Lakeview Oil and Gas Co.'s No. 1, 11-23-19, dr 1300 ft. Valley Exploration Co.'s Brennan 1, 20-23-20, swabbing 3728 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 6600 ft.

SAN LUIS OBISPO COUNTY—Cities Service Pet. Co.'s No. 1, 20-28-15, lcn. Paso Robles Synd.'s Emerick 1, 34-27-11, fsh 3970 ft. C. Shockley's No. 1, 13-32-13, dr shale 3100 ft. Latin American Pet. Co.'s Whitley 1, 31-27-15, swabbing water and trace of oil, td 4618 ft.

SANTA CLARA COUNTY — Sargent Oil Co.'s No. 1, 1-12-3, rig.

SANTA CRUZ COUNTY—Wellton Oil and Gas Co.'s Galletly 1, will re-cemt 6⅝-inch cas at 2665 ft, td 2880 ft.

TULARE COUNTY—Ducor Pet. Co.'s Zimmerman 1, 14-24-27, fsh for bit 2180 ft. Fred N. Gholson's Chambay 1, 3-23-27, lcn. George Knopp's No. 1, 20-22-27, sr 585 ft. C. E. Pettingill's Campo Verde 1, 15-22-27, dr oil sand 850 ft. Larsen, Stanford and Ellis' No. 1, 20-24-23, dr shale 600 ft.

T-I-W Christian Bits

Let's Play Ball!

The keen, quick eye of the batter takes that Southpaw for a three bagger . . . he moves down that baseline with an amazing speed and hooks the third bag perfectly . . . .

SPEED and accuracy . . . that's the thing!

The T-I-W CHRISTIAN BIT is built for both of these, and it doesn't take the practiced eye of a driller to see it!

Write for Illustrated Folder

TEXAS IRON WORKS
1401-1423 MAURY STREET
Houston, Texas

Gott Water Cans & Coolers

The GOTT Water Can is the safe, handy way to keep a clean supply of pure water always handy wherever you may be... It's health insurance... *your supply store has them.*

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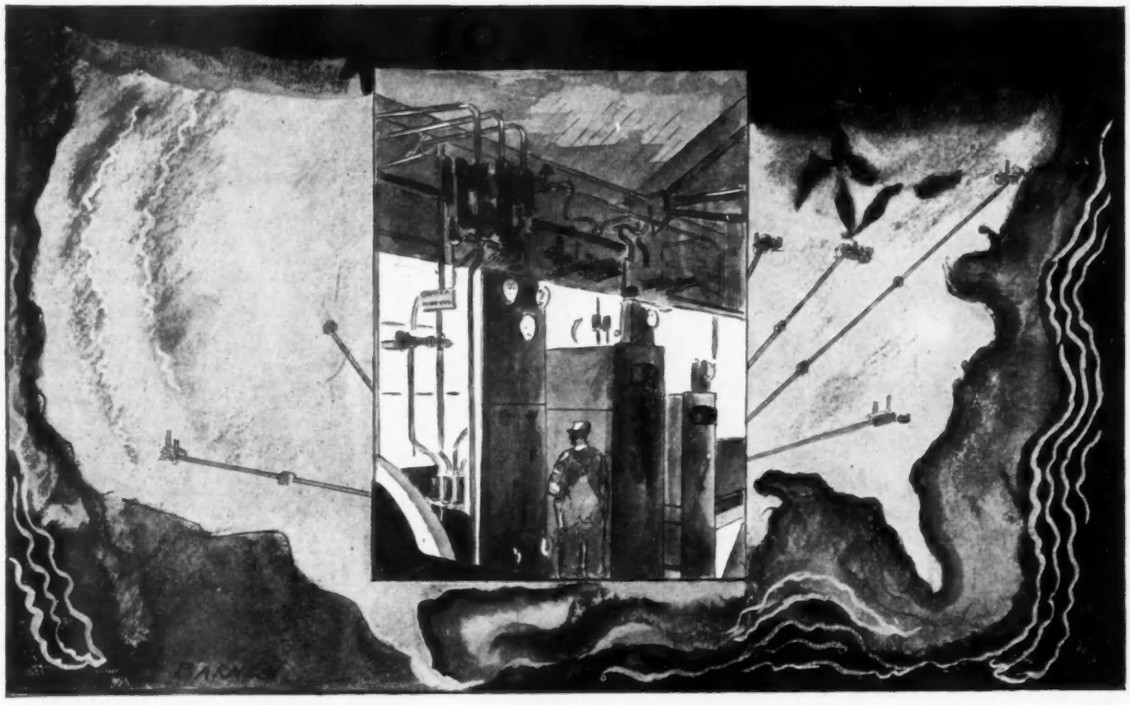
H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY



PULSING OIL

ACROSS A CONTINENT

NO BARRIER is too great where the needs of industry are concerned. Force created in relentless turbo-generators keeps oil pulsing across the continent, over mountains, beneath rivers, through swamps . . . . that the wheels of industry may turn. Pipe lines reach north to Parco, Wyoming; south to Gulf Coast cities in Texas; and east to Bayonne, New Jersey. They contain more than 18,000,000 barrels of oil at all times.

In the Gulf Coast area, as well as in other parts of the nation, the advantages of electric power are being realized more and more by pipe line executives.

GULF STATES

UTILITIES COMPANY

General Offices

BEAUMONT, TEXAS LAKE CHARLES, LA.

Proof

No proof can ever equal the test of performance under actual service conditions.

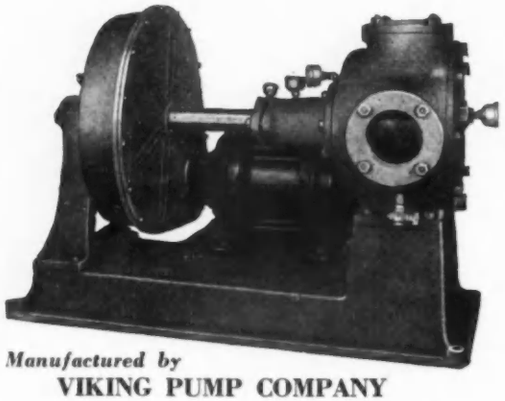
For half a century Ludlow Valves and Hydrants have been reducing operating costs thru year after year of uninterrupted service.

Ludlow performance clearly proves that no possible difference in first cost can out-weigh the everlasting economy of quality.

The TRADE LUDLOW MARK VALVE MFG. COMPANY
TROY · NEW YORK
MAKERS OF *DEPENDABLE* VALVES AND HYDRANTS SINCE 1866

To Handle Large Volumes Quickly and Efficiently Use

VIKING Standard Motor Driven Pump



Note the compactness of the entire outfit which requires a minimum of floor space. The pump and motor are mounted on a cast iron base and connected by a fibre pinion and machine cut gear which run in an oil tight case. It is constructed extra heavy throughout, making it a very rigid and serviceable outfit. It is made in four models and suitable for use with motors up to 1200 RPM.

Get complete details of every model from our engineers and pump specialists.

Manufactured by
VIKING PUMP COMPANY

SOLD BY
Southern Engine & Pump Company
HOUSTON, TEXAS

ARKANSAS

Completions

MILLER COUNTY—
Gusher Bend Oil Co., Adams 1, 24-14-26 . . . . . * 2680
OUACHITA COUNTY—
Wesson & Bonner, Wesson 1, 22-15-19 . . . . . 3 2169
UNION COUNTY—
Hickman et al, Hogg 1, 35-16-17.. * 3328

CHICOT COUNTY—H. R. Smith's Lytle 1, 31-18-3, cemtd back to 2865 ft, ta old td 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s, Underwood 1, nw ne 4-20-8e, sd cur titles 1214 ft.

CLEBURNE COUNTY—Donnell et al's Fee 1, 33-11-9, sd 3740 ft.

COLUMBIA COUNTY—Kendall Oil Co.'s Fullenwider & Kitchen 1, ne ne 13-17-22, sp dr 40 ft.

DALLAS COUNTY—Jno. James, Tr.'s, Fordyce Lbr. Co. 1, ne nw 11-9s-15w, 10-inch 176 ft, tested joint mud thru ds 2492-2502 ft, cored soft white sand 2502-10 ft, arr ds test 2502-10 ft. E. C. Brewer, Tr.'s, Hillman 1, se ne 20-10-13, 10-inch 138 ft, sd in rock 2846 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-3n-19w, cas pulled, hfsw, ta, td 3756 ft.

GRANT COUNTY — Spann & McClung's Sarah Page 1, sw nw 3-3-12, sd wo cas, td in soft white sand 1024 ft.

JOHNSON COUNTY—Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LA FAYETTE COUNTY—Crawford Drilling Co.'s Vaughan 1, 25-19-25, rig. McIver et al's Hattle 1, nw ne 1-20-26, 12½ cas 115 ft, sd 2520 ft. Smitherman & McDonald's Bodcaw 1, se nw nw 16-15-22, 12½ cas 42 ft, 8¼ cas 1176 ft, cored sand 1194-98 ft, 6⅝ cas 1193 ft, bailed dry, small show heavy oil, later sw broke in, sd hfsw, td 1199 ft. Cosby Prod. & Royalty Co.'s Biddle 1, 1-20-26, lcn abn.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LINCOLN COUNTY — L. B. Cook, Tr.'s, McGehee Pltg. Co. 1, ne sw 5-8s-7w, sp, dr 130 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, nw nw 25-12-29, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY—E. & F. Oil Co.'s E. L. Beck 1, 36-15-26, 6⅝ cas 2792 ft, 4½ cas 2957 ft, sd 2968 ft. Bullock Oil Co.'s Hervey 1, 2-15-26, ta junk in hole, td 2832 ft. East Texas O&G Co.'s Hervey 1, 2-15-26, ta 890 ft. Gusher Bend Oil Co.'s Adams 1, nw nw 24-14-26, 10-inch cas 115 ft, dr abn, td 2680 ft. O'Hara et al's Person 1, 31-15-25, lcn abn. Fitzwater et al's Beck 1, sw se 33-15-26, 10-in 85 ft, sd. J. D. McRae's Smith 1, nw se 28-15-26, dk.

OUACHITA COUNTY—Copenhaver et al's Elliott 1, se se 11-15-17, 6-inch 2185 ft, dry, sd 2210 ft. Wesson & Bonner's Wesson 1, sw nw 22-15-19, 6⅝ cas 2083 ft, pumping 3 bbls oil 2 bbls sw, td 2169 ft.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24, show heavy oil 567 ft, sd in lime rock 2920 ft. E. R. Henderson's Lee 1, sw se 31-8s-24w, dk.

POPE COUNTY—Ark. La. P. L. Co.'s McFadden & Brooks 2, ne nw 15-9-21, 13⅜ cas 1900 ft, tested 1 mil ft gas 3285 ft, 8⅝ cas 3415 ft, 8-in 3451 ft, 5 3/16 cas 4145 ft, hole caved in at 4322 ft, co td 4356 ft; Baird 1, se nw 11-7n-20w, 10-inch 1168 ft, 6⅝ cas 3403 ft, dr shale 3610 ft.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, fsh cas, td 1536 ft. Waldron O&G Co.'s J. G. White 1, sw nw 17-3n-29w, 10-inch 225 ft, sd wo cas, td 1860 ft(second hole).

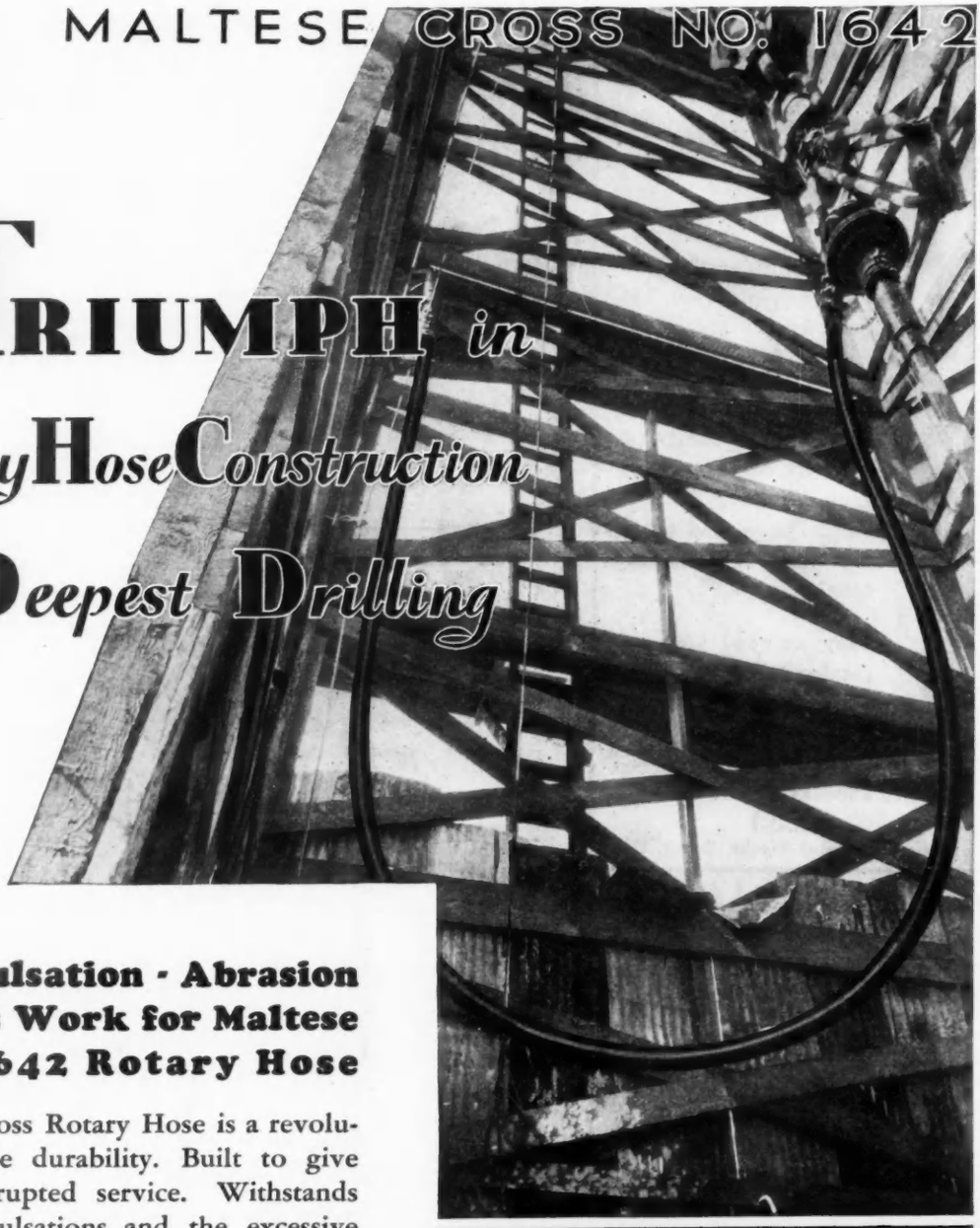
SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd after testing sw, td 2515 ft.

SEVIER COUNTY — Tri-State O&G Co.'s Bank of DeQueen 1, s½sw 34-8s-32w, dk.

UNION COUNTY—Hickman et al's Hogg 1, 35-16-17, top Graves sand 2351 ft, top red beds 2779 ft, whipped stock at Nacatosh at 2090 ft, dry in new hole at 2140 ft, dry abn, old td in shale 3328 ft. Rice et al's Whatley 1, 7-17-15, sd 2186 ft. Southern Prod. Co.'s Wingfield 1, se nw 16-19-15, 10-inch 103 ft, sd 2608 ft. Lion O. R. Co. et al's Guy P. Hayes A-9, sw ne 4-16-15, 12½ cas 270 ft, dr bro lime and

MALTESE CROSS NO. 1642

a TRIUMPH *in* Rotary Hose Construction *for* Deepest Drilling

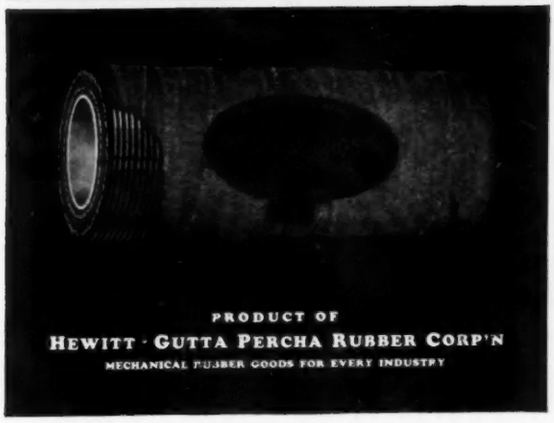


Pressure - Pulsation - Abrasion All in a Day's Work for Maltese Cross No. 1642 Rotary Hose

The new Maltese Cross Rotary Hose is a revolutionary step in hose durability. Built to give economical, uninterrupted service. Withstands mud erosion, oil, pulsations and the excessive pressures encountered in drilling to the present-day extreme depths. Note its rugged construction . . . its special combination wire reinforcing . . . its outside protection of spiralled duck tape.

There is a specific Hewitt-Gutta Percha rotary hose for every class of drilling condition: *Maltese Cross* No. 1642 for the highest pressures; *Monarch* No. 1139 and *Ajax* No. 1728 for less strenuous jobs.

Cut drilling costs — insist on highest quality — specify Hewitt-Gutta Percha.



OIL FIELD DISTRIBUTORS

OIL WELL SUPPLY CO.

Heeter's Packers and Swabs

For over a quarter century the name of C. M. Heeter, Sons & Co. has been known to the oil men of America.

Heeter's Improved Patent Swabs, Corrugated Friction Sockets, Wire Line Pumping Outfits, Sand Pumps and other Gas and Oil Well Materials.

May we send you our catalog showing complete line?

C. M. Heeter, Sons & Co. (Inc.)
Main Office and Works, Butler, Pa.

FLEXIBLE STUFFING BOX

Eliminates all trouble from crooking and binding polish rods, from jacks or beam out of line.

Moves with polish rod.
Decreases polish rod wear.
Decreases vibration.
Decreases leakage.
Lubricates polish rod on down stroke.
Prevents breaking off of top nipple or collar and dropping tubing.
COSTS NO MORE.

Information as to present users on request—

INVESTIGATE NOW!

CHAS. STARYSKY
ROUTE 3 ST. JO, TEXAS
Manufacturer of Rod and Tubingless Pumping System.

Send for bulletins on this system if you desire to save on your pumping costs.

shale 2435 ft (to go 5000 ft). Wilson & Chapman's Ned Parker 1, nw se 3-18-13, 10-inch 230 ft, dr shale 2100 ft; Hadley 1, ne sw 3-18-13, 10-inch 102 ft, 600 ft fluid in hole 30 per cent sw, sd td 3570 ft. Marine Oil Co.'s P. Winn A-2, nw nw 11-18-13, sp 10-inch 276 ft, dr 2125 ft. Union Sawmill 1, se se 3-18-13, rig.

WASHINGTON COUNTY—Taylor et al's Runny 1, 1-13-29, sd 1702 ft. Lincoln Lease Holding Synd.'s Townsite 1, 30-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-12, sd while fsh cas, td 5710 ft.

MISSISSIPPI

Completions

RANKIN COUNTY (Jackson Dist.)—Millstein O&G Co., Gammill-Hartfield 1, 6-5-2e ..... * 2500

CLARKE COUNTY (Quitman Dist.)—Gulf Ref. Co.'s Box 1, nw se 11-2n-15e, elev 221 ft, 15½ cas 105 ft, 10-inch cas 922 ft, top Midway black shale 2205 ft, top Selma chalk 2637 ft, base chalk 3703 ft, top Tuscaloosa red beds 4205 ft, dr red beds 4225 ft.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft, 13⅜ cas 1389 ft, 9⅝ cas 2929 ft, str crooked hole, td in gray sand 3526 ft.

CHICKASAW COUNTY — Hightower & Golsan's Fleming 1, 20-13s-3e, sd wo 6-inch cas, td 1505 ft.

COVINGTON COUNTY (Collins Dist.)—Gulf Ref. Co.'s Pope 1, 35-8n-16w, arr res, td 3000 ft.

GRENADA COUNTY—Carter Oil Co. et al's Dubard 2, 18-22-4e, se nw 18-22-4e, sd 800 ft. wo cas.

JASPER COUNTY (Bay Springs Dist.)—Bay Springs Pet., Inc.'s J. H. Keyes 1, nw ne 21-2n-10e, 15½ cas 104 ft, top Cane River 1090 ft, cored sandy shale 1378-88 ft, still Cane River, sr td 1388 ft.

MONROE COUNTY (Amory Dist.)—Amory Dev. Co.'s Bourland 1, sw ne 2-15-19, sd in brown sand 3007 ft. P. J. McAlpine's Cowart 1, ne sw 2-12-19, 10-inch 694 ft, 8¼ cas 1276 ft, sd wo drill line 1987 ft. Associated Royalties' School Board 1, sw se 16-15-17, sd 60 ft.

RANKIN COUNTY (Jackson Dist.)—Love et al's Muse 1, se se 32-7-4e, 12½ cas 600 ft, dr sandy shale (Wilcox) 3321 ft. Love Pet. Co.'s Moore 1, se nw 28-6-2e, ta 900 ft. Millstein O&G Co.'s Gammill Hartfield 1, sw ne 6-5-2e, top Midway shale 2409 ft, top chalk 2496 ft, showed some heavy oil and sw, dry abn, td 2500 ft, elev 273 ft. Atkisson et al's Valentour 1, nw nw 18-5-2e, rig.

WARREN COUNTY (Vicksburg Dist.)—Eagle Lake O&G Co.'s Kiger 1, sw se 9-18n-2e, rig. Dixie Pet. Co.'s Pat Henry 1, se ne 36-17n-4e, 12½ cas 120 ft, dr sandy shale 1327 ft. Vicksburg O&G Co.'s Dornbusch 1, sw ne 8-18n-5e, ta 1600 ft.

WINSTON COUNTY (Louisville Dist.)—Miss. Drilling Co.'s Scarbrough 1, nw nw 15-13n-14e, base red beds 2739 ft, sd in black shale 2797 ft.

SCOTT COUNTY—Culley et al's Owen 1, 2-8n-9e, dk.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collett et al's Blackmer 2, sw nw 14-11s-4w, 12½ cas 103 ft, cemented 8⅝ cas 2428 ft, td 2850 ft.

ALABAMA

MADISON COUNTY — Tennessee Valley O&G Co.'s Fee 4, 1-4s-2e, no report.

SUMTER COUNTY (Livingston Dist.)—Forked Lightning O&G Co.'s Nixon 1, sw ne 30-20-2w, dk.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, 10-inch 130 ft, driving 8-inch pipe at 916 ft. Hobson Bros. 1, 9-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, sd 700 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, dr gray lime 2166 ft.

McCollum Exploration Co.
Contracts taken for Seismograph Work
Foreign Representatives:
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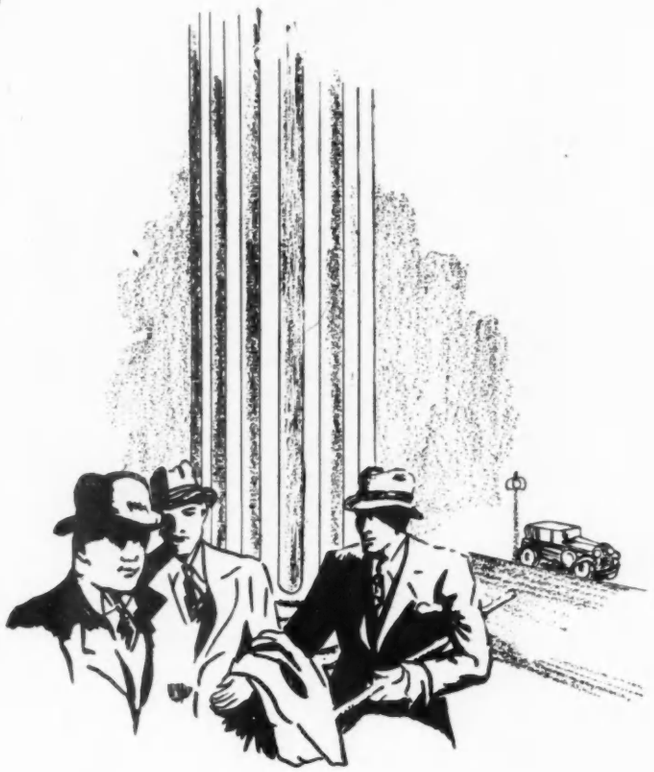


Sam Houston

Meet General Sam Houston and his associates in the series of historical sketches which the Houston National Bank is broadcasting from KPRC each Monday evening at 10:15 — a series which is now concerned with the building of the young Texas Republic.

Real Estate Loans

We have recently installed a department of loans on improved real estate situated in the City of Houston, for periods of from one to five years. All loans are made from our own funds, and are handled without delay. No commission, no brokerage and no appraisement fee. If you plan to refinance, to rearrange your property, to erect new buildings, may we not have the opportunity of suggesting just how we can aid you?

Your Banker's Advice

There is something to a bank besides the mere depositing and withdrawing of money . . . its willingness and ability to give sound financial advice.

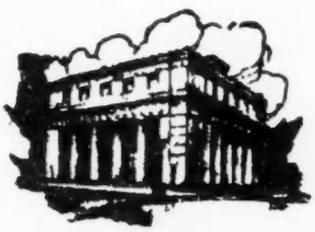
You go to your lawyer for legal advice . . . to whom then for financial advice but your own banker?

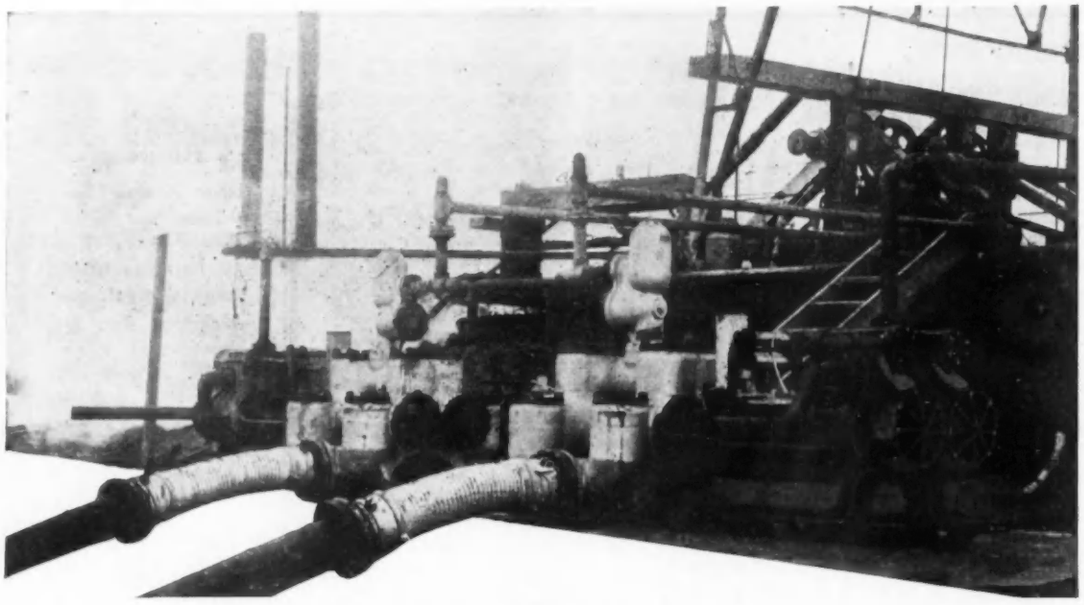
Just because we so thoroughly believe in this course the executives of this institution have thoroughly acquainted themselves with business conditions in many fields.

So, when you come in, we'll do more than shake your hand—although we'll do that heartily!

HOUSTON NATIONAL BANK

Main at Franklin





These pumps operating on Ben Coyle's rig at Refugio, Texas

Here's a *Better* Pump »» to give *Better* Service

WILSON-SNYDER SIDE SUCTION SLUSH PUMPS

with their direct flow from slush pit to pump piston eliminate many of the difficulties experienced with pumps of the regular type. With the W-S "Side Suction" there are no ells or sharp turns; the flexible coupling absorbs vibration, reduces wear and tear on pump and the pump fills quicker with more even distribution of fluid to valves.

Get a Wilson-Snyder Side Suction and experience the greatest pump performance, efficiency and economy you've ever known.

OPERATORS IN EAST TEXAS
Wilson-Snyder pumps, and complete lines of standard oil field equipment are carried in our stores at Joinerville and Kilgore.

Wilson SUPPLY COMPANY
Oil & Gas Well SUPPLIES

BRANCHES
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MAIN STORE
1412 MAURY ST., HOUSTON, TEX.

New Equipment for the Field

MACHINERY - TOOLS CATALOGS - BOOKS

▼ ▼ ▼

Protective Paint

CHEMICAL PRODUCTS COMPANY

A new protective coating for general uses in the oil industry has been developed by Chemical Products Company of Wichita, Kansas, under the supervision of Harry H. Rose, president. Tradenamed Resistal, the preparation is an organic material of extreme elasticity and suitable for applying on tanks, refinery and gasoline plant fittings and equipment as a protection against corrosion.

Metal Treated with Resistal

Resistal has been found to be a rust inhibitive and has been used as a bond in threaded connections in both tankage and pipe connections as well as interior coating for tanks, towers and other plant equipment. It is nonsoluble in all hydrocarbons and may be applied in different strengths to suit differing conditions. Tank cars for handling natural gasoline and also liquefied petroleum gases also have been treated with Resistal.

In applying the material the surface must be thoroughly cleaned and application may be made by either the spraying method or by dipping or by painting.

Samples of the material may be obtained by communicating with the company direct.

Automatic Tank Gauge

VAPOR RECOVERY SYSTEMS COMPANY

Vapor Recovery Systems Company, Compton, California, announces a new automatic tank gauge for tanks.

This new liquid gas gauge, known as the "Varec," is designed to eliminate problems and hazards encountered in gauging of liquid gas, due to high pressure which must be maintained within the vessels.

Contents in the tank are given in feet and inches at the ground or may be at some remote location, according to a description of the manufacturers.

All fittings are tested at twice the working pressure, the gauge tape being visible through a plate glass window.

These gauges are suitable for use on tanks maintaining 50 pounds gauge pressure to 250 pounds pressure. In cases of 250 pounds pressure gate valves may be installed over the look box glass as an additional safety without interfering with the view of the tape.

The manufacturers explain that the method of construction lends itself to varying requirements and may be had for any working pressure.

Machined Shot Barrel

AMERICAN IRON & MACHINE WORKS COMPANY

American Iron & Machine Works Company, 518 North Indiana, Oklahoma City, is manufacturing a precision machined shot barrel for pouring shot down the tubing when production weakens, to recup the plunger, the lead filling up any scored place in the gray iron barrel.

The manufacturers explain that proper leading-up of the gray iron barrel fills up with lead any inaccuracies in the barrel and makes a smooth, close sliding fit for the plunger, adjusting its own tightness and insulating the loadstone away from the balls and seats. They explain that if it becomes necessary to pull the plunger out of the barrel after the shot has been poured in, the shot will pass the standing valve into the shot trap in the bottom of the barrel. The plunger is then run back in the barrel and more shot poured in.

This barrel is made for two, two and one-half and three-inch tubing, upset or regular. The barrels are called and classified as six, eight and 10-foot barrels, although, it is explained, the barrel is considerably longer than classified. The six-foot barrel is recommended to depths of 2400 feet, the eight-foot barrel for wells 2400 to 4500 feet, and the 10-foot barrel for 6000-foot wells or deeper.

It is designed to eliminate plunger freezing by floating sand, to do away with temperature or loadstone effects, to do away with cups and to prevent loss of production in recharging.

Further information will be given to production men upon request.

Centrifugal Pumps

GOULDS PUMPS, INC.

Goulds Pumps, Inc., Seneca Falls, New York, announces that 24-hour shipment of complete centrifugal pumps, either from the factory, the company's branch warehouses or from a distributor will be made on the new flexi-unit line, recently placed on the market.

The flexi-unit centrifugals comprise 11 standard pump units, with changeable impellers, and nine universal bedplates for mounting any size motor from one-quarter to 50 horsepower and with speeds of from 1450 to 3450 revolutions per minute. From this limited stock of parts 150 pumping combinations can be produced, for capacities from 10 to 1100 gallons per hour, at heads to 350 feet.

"Nolos" Oil Saver

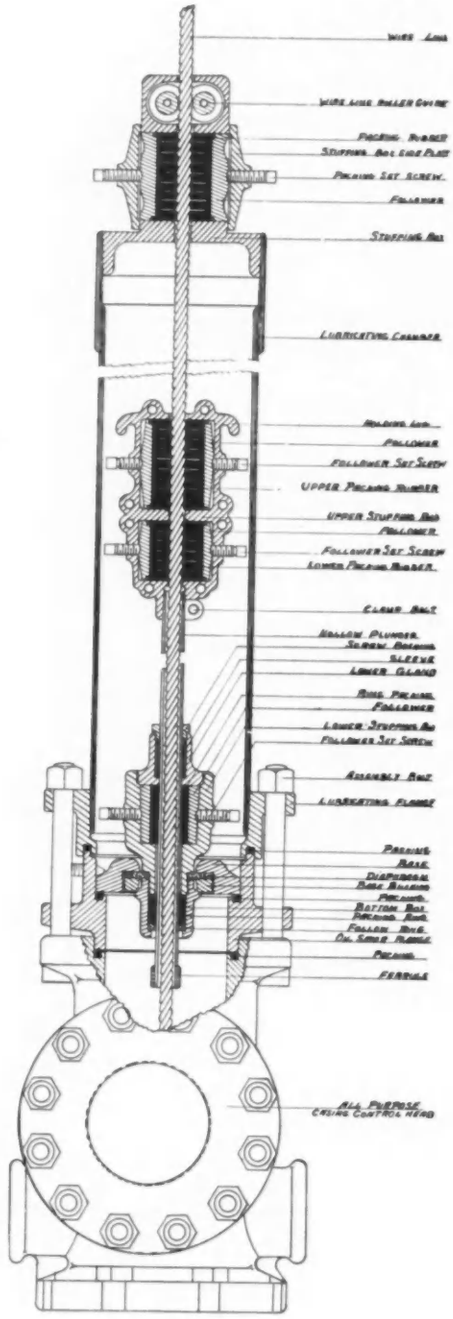
OIL WELL IMPROVEMENTS COMPANY

Oil Well Improvements Company, Tulsa, Oklahoma, is now selling a new plunger type oil saver called the "Nolos," adapted for use with the lubricating chamber or in regular control heads, gate valves and fittings. It can be secured by set screws, hold down clamps or both.

Construction is all steel; made to operate against high pressures. It allows gas to be taken from the well for commercial purposes while drilling.

The plunger may be repacked under pressure by use of

▼ NEW EQUIPMENT FOR THE FIELD ▼



Nolos Oil Saver

the double pack principle. The drilling line is packed off inside the plunger by a double pack oil saver and the plunger is packed in base with metallic and rubber packing. The diaphragm in the base offers flexibility to plunger, to prevent binding or wear by keeping the working parts in alignment at all points of beam stroke.

It provides that wells can be swabbed with no change in this saver.

The manufacturers will furnish complete details upon request to the Tulsa office.

Landis Machine Company, Waynesboro, Pennsylvania, in Bulletin H-75 covers the one and 1½-inch single and double head Landmaco threading machine which has recently been placed on the market. The machine is fully described and illustrated in this bulletin, which will be sent to shop superintendents and engineers.

Spence Engineering Company, Inc., 110 East 42nd Street, New York City, describes and illustrates the line of Spence equipment in a series of bulletins bound in a loose-leaf catalog, A.I.A. File No. 34-G-3, a copy of which is available for the asking. The various types of Spence regulators are fully described and illustrated in this well arranged layout of bulletins.

The Darcoid Company, Inc., 179 Christopher Street, New York City, tells briefly the story of "Rodtite," the spiral or loose asbestos metallic packing for stopping leaks and for the purpose of eliminating friction and scoring in a four-page bulletin recently off the press. Both the spiral type and loose type in containers are shown in this bulletin, which also devotes space to recommending the various uses for various conditions. The manufacturers will furnish a copy of this bulletin upon request, or will furnish more complete information upon request.

Greenfield Tap and Die Corporation, Greenfield, Massachusetts, has a pocket-size folder describing a new line of Little Giant screw extractors which is now being placed on the market. The new screw extractor described in this folder is designed to "feed" itself into a hole drilled in the broken screw or stud, instead of having to be hammered into it. Thirteen sizes of screw extractors are offered in this line. Manufacturers and repair shops will be forwarded a copy of this folder upon request.

Sullivan Machinery Company, 400 North Michigan Boulevard, Chicago, announces in Bulletin 83-V, recently off the press, the new Sullivan railroad type portable compressor. This unit is available for any pneumatic power service, including operation of concrete breakers, paint sprays, spike drivers, etc. A copy of the bulletin describing the new machine is available for the asking. The bulletin is cut for loose-leaf filing.

Hill, Hubbell & Company, division of General Paint Corporation, Tulsa, has recently published "The Book of Pipe Protection," gotten up with a tab marked "Pipe Protection" so that it can be filed in the superintendent's, engineer's or purchasing agent's desk, if desired. The book describes fully the mechanical application of bituminous coatings and wrappings at the pipe mill. It also contains complete specifications and price lists for pipe from three-quarter-inch to 26-inch, inclusive. Intermingled with the descriptive matter are numerous photographs which show to what extent mill coated and wrapped pipe has been used during the past 2½ years. Pictures shown represent areas throughout the United States and Mexico. The book is arranged in loose-leaf form so that changes or additions can be made as desired. Copies are being sent to all key men in the oil and gas pipe line industry, and anyone interested in receiving a copy can write General Paint Corporation at Tulsa.

Statement of Condition

Southwest's Leading Bank

at Close of Business, March 25, 1931

ASSETS

Loans and Discounts		$ 50,471,886.71
United States Bonds to Secure Circulation		2,945,000.00
Other United States Securities Owned		15,824,200.00
Stock in Federal Reserve Bank		300,000.00
Other Stocks and Bonds		5,144,278.54
Furniture and Fixtures		237,478.03
Real Estate and Banking House		2,456,700.00
Other Real Estate		1,101,685.86
Customers' Liability Account Letters of Credit		195,323.22
Customers' Liability Acceptances (Less Anticipations)		1,497,871.48
CASH		
On Hand and with Federal Reserve Bank	$ 9,623,549.05	
With Other Banks	15,267,554.31	
With United States Treasurer	147,250.00	25,038,353.36
Total		$105,212,777.20

LIABILITIES

Capital Stock Paid in		$ 8,000,000.00
Surplus Fund		2,000,000.00
Undivided Profits, Net		4,792,162.50
Reserved for Contingencies		216,500.00
Reserved for Taxes, Etc.		285,388.79
Circulation		2,945,000.00
Letters of Credit Outstanding		195,323.22
Acceptances Executed for Customers		1,513,391.62
DEPOSITS		
Individual	$56,245,529.26	
Banks and Bankers	23,235,761.27	
United States Government	5,783,720.54	85,265,011.07
Total		$105,212,777.20

First National Bank

1875 **in Dallas** **1931**

Squeaks From the Bull Wheel

▼ ▼ ▼

Mrs. Talkalot — Mrs. Jabber and I are not on speaking terms.

Mr. Talkalot—Oh, don't mind that! It won't hurt both of you to have a little rest.

Russian Youth—Today you will look upon my face for the last time.

Mother—What—you would kill yourself?

Youth — No, mother; I'm going to raise a beard.

A beautiful young lady and her bashful suitor were alone in the parlor. After several minutes of silence she finally said: "What are you thinking about, John?"

"The s-s-same thing you are," he finally blurted out.

"Oh, you bad boy. I've a good notion to slap your mouth."

Tin stitches did th' doctor have to take in me ould man afther that fight wi' them policemen last night!

Tin, was it, only tin? Sure, whin th' doctor seen me poor husban' carried in this mornin', he sez, sez he, "Do there be no wan here wid sich a t'ing as a sewin' machine?"

"When you came home last night you said you had been to the Grand with Mr. Jones. Now you say it was the Trocadero. Why did you lie?"

"When I came home I couldn't say Trocadero!"

"Whatever I have accomplished," said the pompous man, "I owe to myself."

"How delightful it must be," murmured a weary listener, "to feel so clear of debt."

A little Chicago youngster was eating his supper when his mother swung into the nursery in a new evening gown—one of those evening gowns—a revelation, so as to speak.

"Where are you going, mummy?" the youngster asked.

"To the opera, dear," said she.

He looked worried.

"But, mummy," he said, "somebody might see you."

Were you lucky at the races yesterday?

I should just think I was. I found a quarter after the last race, so I didn't have to walk home.

I heard you accidentally hit a pedestrian today.

Yeah, that's just my luck. And when I try I can't hit one to save my soul.

A lusty-lunged auctioneer was selling cigars in a small town. Addressing the crowd he shouted, "You can't get better, gentlemen. I don't care where you go."

"Check and double-check," yelled a voice from the rear. "I smoked one last week, and I'm not any better yet."

That Mrs. Smiff is one of the meanest and most coldhearted creatures I ever knew.

Why, what has she been doing now?

I went to call on her to tell her all about my appendicitis operation and to show her the scar, and she took no interest whatever. She didn't even want to see the scar.

How morbid!

Brown was one of the best men who ever lived.

How do you know?

I married his widow.

A farm laborer in England had been out of work for many months and had been living on the dole. He remarked to his physician one day:

"Doctor, do you know I had an offer of work some days ago which would have given me five shilling more a week than I am getting from the dole, but after giving it thorough reflection, I preferred to remain independent."

"Doctor, can you tell me who that terrible looking man is over there?"

"I can," replied the medical man. "That is my brother."

There was an awkward pause while the woman racked her brain for something to say. The doctor was enjoying her discomfiture.

"Oh, I beg your pardon," she stammered, blushing. "How silly of me not to have seen the resemblance."

Oh, Jack, little Sue is just beginning to talk. She's learning to recite "Baa, baa, black sheep, have you any wool."

Does she really say all that?

She doesn't say it all yet, but she's got as far as "Baa, baa."

"Gerald, dear, why are some women called Amazons?"

"Well, my dear, you remember the Amazon river has the largest mouth—"

But she went out and slammed the door before he could say any more.

APPLEMAN GUMBO BITS

For Smooth, Fast Digging

Scout: "Understand you fellows had a fishing job out here yesterday . . . what's the matter?"

Driller: "Yeah! The bit kept ballin' up and we backed off and lost six fourbles in the hole spuddin'."

Scout: "Well, at that rate you guys won't finish this hole for another month."

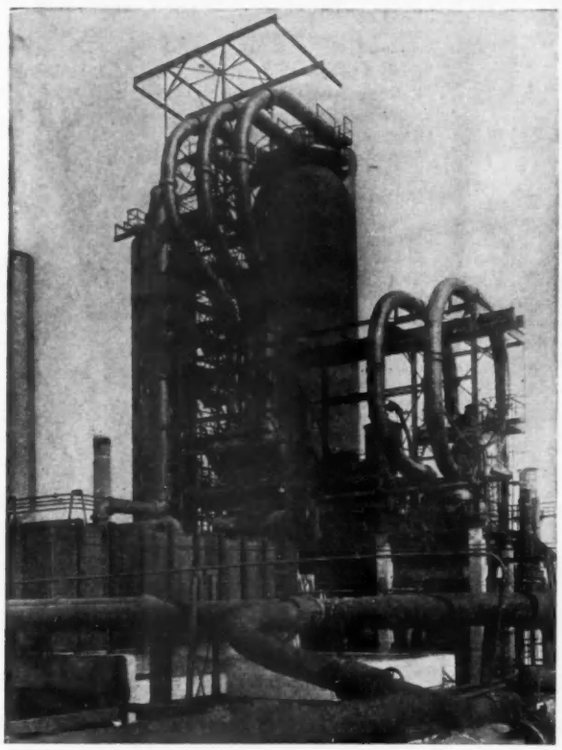
Driller: "Boy, if we could get a couple of APPLEMAN'S on this job I'd show you some smooth, fast diggin'!"

Write for complete information

B.K. APPLEMAN
BEAUMONT, TEXAS

GULF

Modern Methods Make Modern Gulf Products



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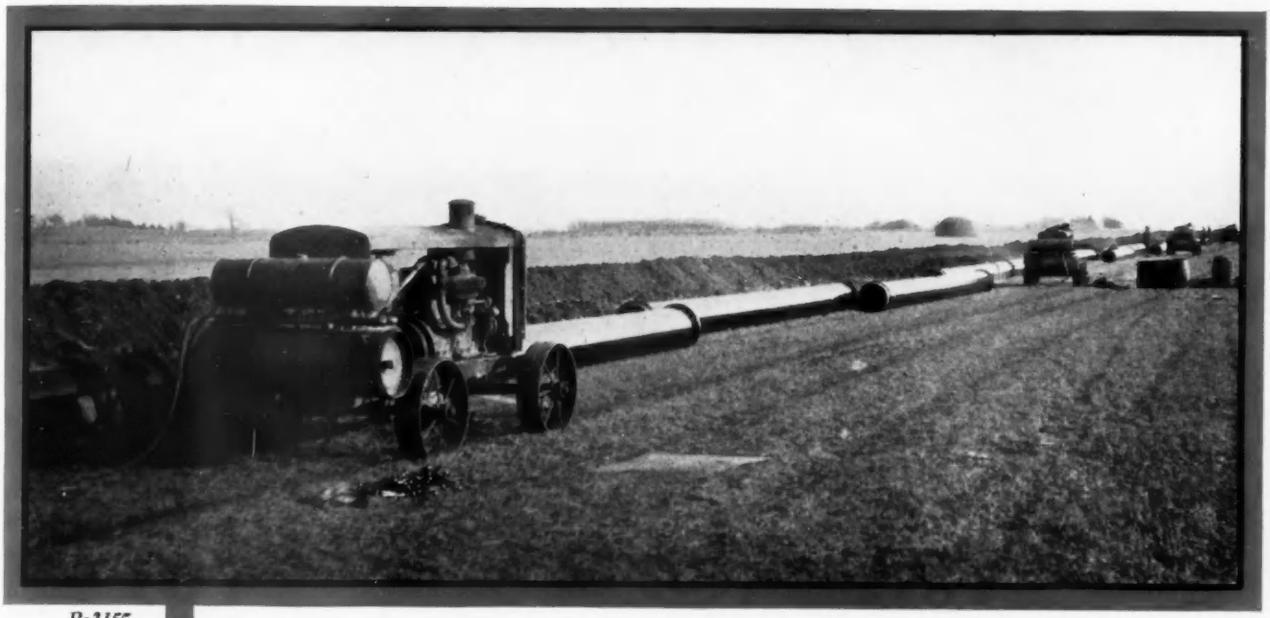
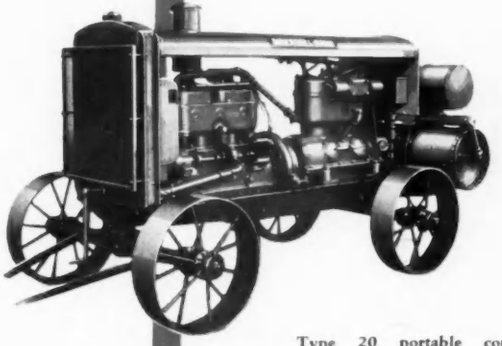


R-2155

I-R Portable Compressors Speed Pipe Line Work



Type 20 portable compressor on standard steel-wheel mounting.

One of the 8 sizes of "Jackhamer" rock drills. A complete line of pneumatic diggers is also available.

The above view shows 4 Ingersoll-Rand Type 20 portable compressors working on a section of the Panhandle-Indianapolis natural gas line of the Missouri-Kansas Pipe Line Co.

The contractors handling construction on more than two-thirds of this 1,000-mile line standardized on I-R portables and "Jackhamers."

Wherever rock has to be broken, this combination of I-R equipment will prove fast and dependable. There are 11 sizes of portables, ranging in capacities from 30 to 500 cu. ft. per minute, and 8 sizes of "Jackhamers." This extensive line makes it easy to select the most effective outfit for a specific job.

INGERSOLL-RAND COMPANY
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For Canada Refer—Canadian Ingersoll-Rand Co., Limited, 620 Cathcart Street, Montreal, Quebec

289-PC

Ingersoll-Rand

FLEXIBLE THINGS ENDURE

THE SLENDER MAST QUIVERS, BENDS AND CARRIES A HEAVY LOAD OF SAIL

FLEXIBLE CUPS ON THE GUIBERSON SWAB GIVE WAY TO PROTRUSIONS and LIFT THE FULL LOAD OF OIL

A Spanking breeze means flapping sails, swinging booms and constant jerking and tugging at the slim pole that is the most important thing aboard. But it gives, bends and carries the load.

The Flexible Cups of the Guiberson Swab, passing upward through pitted, dented and worn casing, escape damaging contact with the rough places because of their pliant nature, yet maintain a perfect seal and lift all the fluid. Guide wires steer the cup rims as they pass over the dangerous areas. The heavier the load, the tighter the seal with the casing wall. Pressure from below collapses the cups, allowing far speedier passage into the hole. The Guiberson Swab is doing most of the world's swabbing today.

Fully patented

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